

AL.1.1651

C.2

REPORT

Sexually Transmitted Diseases In Alberta

Epidemiologic Report To December 1997

Acknowledgments

Acknowledgments

Prepared by Joanne McKechnie
Demos Analytic Group Inc.

Published by the Health Surveillance Branch, Alberta Health, 1999

ISSN 1481-8191

Copies of this publication are available:

By mail

Health Surveillance Branch
Alberta Health
P.O. Box 1360
10025 Jasper Avenue
Edmonton, Alberta
T5J 2P4

By fax or telephone:

Phone: 780-422-4418
Fax: 780-427-1470

By internet:

<http://www.health.gov.ab.ca>

Acknowledgements: The assistance and cooperation of Disease Control and Prevention (STD Unit), STD clinics, physicians and the provincial Laboratories of Public Health in collecting the information on which this report is based are gratefully acknowledged.

Suggested Citation: Alberta health. Sexually Transmitted Diseases in Alberta: Epidemiologic Report to December 1997. Health Surveillance Branch, Alberta Health and Wellness, 1998.

Health Surveillance
Alberta Health and Wellness
P.O. Box 1360
10025 Jasper Avenue
Edmonton, Alberta T5J 2N3
Canada

Phone: 780-427-4518
Fax: 780-427-1470

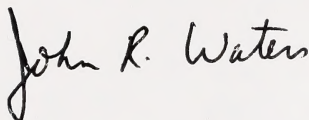
Letter of introduction

The Health Surveillance Branch and the provincial health officer are pleased to provide you with Sexually Transmitted Diseases in Alberta: Epidemiologic Report to December 1997. This integrated report covers the period from 1990 to December 31, 1997. We anticipate that a similar report will be published annually.

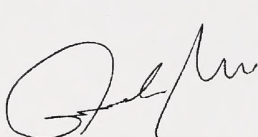
All cases of STD diagnosed, treated and reported to the provincial health officer by December 31, 1997 are included in this report.

The report is presented in two sections. The first section defines STD terminology and discusses limitations of the data. The second section provides information on STD cases in the province.

We welcome your comments and suggestions. You may contact us at the above address, email or fax.



Dr. John Waters
Provincial Health Officer



Dr. Stephan Gabos
Surveillance Branch



Dr. Ameeta Singh
STD Medical Consultant

Table of contents

Section 1 Overview

1.1 Introduction	1
1.2 Data collection	1
1.3 Definitions, technical notes and abbreviations	2

Section 2 STD Epidemiology

2.1 Incidence of <i>Neisseria gonorrhoeae</i>	3
2.2 Incidence of Syphilis	10
2.3 Incidence of <i>Chlamydia trachomatis</i>	14
2.4 Incidence of Non-gonococcal urethritis/mucopurulent cervicitis	22
2.5 Pelvic inflammatory disease	28
2.6 Claims for physician services related to STD	30

Section 3 STD Screening, Surveillance and Program Activities

3.1 Contact tracing	31
3.2 Clinic services	31
3.3 STD/HIV 1-800 Information line	34

Appendices

Appendix A Population by age and gender, Alberta, 1996 and 1997	37
Appendix B <i>Neisseria gonorrhoeae</i> , 1996 data	38
Appendix C Syphilis, 1996 data	40
Appendix D <i>Chlamydia trachomatis</i> , 1996 data	40
Appendix E Non-gonococcal urethritis/mucopurulent cervicitis, 1996 data	41
Appendix F Pelvic inflammatory disease, 1996 data	42
Appendix G Claims for physician services related to STD, 1996 data	43

1.1 Introduction

Although the number of reported cases and rates of bacterial sexually transmitted diseases (STD), most notably gonococcal infections and syphilis, have been decreasing in Canada since the 1980s, STD remain an important health problem in Canada. Health Canada reports that STD figures (including those for AIDS) represented more than one-third (36 per cent) of all notifiable diseases in Canada in 1995 compared to 23.8 per cent in 1987. Hospitalizations for pelvic inflammatory disease (PID) and ectopic pregnancies (which are often associated with STD) have declined, but this may be in part related to changes in the way the health system manages specific diseases.

Chlamydia is the most commonly reported STD in Canada (84 per cent of all STD) and the main reason why STD constitute an ever-increasing proportion of all communicable diseases. Young women bear the burden of chlamydia and are often unaware of their infection. The sequelae that may develop include pelvic inflammatory disease, ectopic pregnancy and infertility¹. Twenty per cent of infertility among couples can be traced to damage to the female partner's fallopian tubes that resulted from PID caused by STD. The cost of PID in Canada was estimated in 1991 to be approximately \$200 million annually².

This report presents a picture of sexually transmitted diseases in Alberta using selected statistical and epidemiological data. It provides detailed information on the incidence of STD in 1997 plus historical information on these infections in the province. It also provides information on the number of cases of pelvic inflammatory disease (obtained from hospital separation data) and the number of visits claimed by Alberta physicians for STD-related conditions.

It is mandatory in Alberta, under the Public Health Act and the Communicable Diseases Regulations, to report the following sexually transmitted diseases to the provincial health officer: *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, syphilis, non-gonococcal urethritis/mucopurulent cervicitis (NGU/MPC), chancroid, and lymphogranuloma venereum. Provincial and territorial authorities forward information on gonorrhea, syphilis, chlamydia and chancroid infections to the Bureau of Disease Surveillance, Laboratory Centre for Disease Control (LCDC), Health Canada. HIV/AIDS, which can be transmitted through sexual

contact, also became a notifiable disease in Alberta in 1997. Information on HIV/AIDS is contained in a separate publication³.

The Disease Control and Prevention Branch of Alberta Health and Wellness, in partnership with the regional health authorities and other health institutions, provides comprehensive programs to control STD in Alberta. STD services include clinics in Calgary, Edmonton and Fort McMurray and other activities such as: research to improve the diagnosis and management of STD; disease prevention and health promotion related to STD; presentations to medical students and consultation services to physicians; and a toll-free, province-wide STD/HIV/AIDS information line. In 1997, the service delivery aspect of STD services was divested to the regional health authorities. The Disease Control and Prevention Branch continues to operate the centralized, co-ordinated reporting system responsible for case management.

1.2 Data Collection

Physicians, STD clinics, hospitals, and laboratories report confirmed STD cases to the provincial health officer. This information is captured through physician notification forms, laboratory reports and STD clinic data that are sent to the Disease Control and Prevention Branch, Alberta Health and Wellness for case management and surveillance. Non-nominal data are forwarded to LCDC, Health Canada, which collates provincial data and provides a national picture.

Demographic information is collected on clients' age, gender, marital status, residence, sexual preference, place of birth and length of time in Canada. Disease-specific information collected includes laboratory results, antibiotic sensitivity, clinical findings, history of previous STD, place of exposure, number of contacts, and treatment.

Data included in this report were derived from: the sexually transmitted disease system at Alberta Health and Wellness, the department's hospital morbidity and physician services databases, and the *Sexually Transmitted Disease Surveillance in Canada* annual reports published by the Health Protection Branch, Health Canada. Population denominators were provided by the Health Surveillance Branch, Alberta Health and Wellness, from the stakeholder registry.

Data quality may be affected by the completeness of detection and reporting, the accuracy or validity of data submitted and time lags in reporting. The validity of data on hospital separations and physician visits is subject to the accurate assignment of diagnostic codes by physicians. Slight variation may occur between federal and provincial figures due to differences in: a) inclusion criteria, b) reporting cut-off dates and c) estimation of population counts.

The tables in this report focus on 1997 data but comparable data for 1996 are either included within the report or in the Appendices.

1.3 Definitions, Technical Notes and Abbreviations

Definitions:

Incidence - Total number of cases that have occurred in the population, including those who have died, within a fixed period of time (frequently per year, e.g. annual incidence).

Reporting delay - The difference in time between diagnosis and reporting.

Reported cases by year of diagnosis - The breakdown of reported cases by the year of actual diagnosis as opposed to the date of reporting.

Rate - The number of cases that have been reported per 100,000 population for a specified period of time (annual or cumulative).

Rate ratio - The rate for one jurisdiction over the rate for a second jurisdiction, e.g. provincial rates over the national average.

Technical Notes:

Time frame for data capture - All cases of STD that were diagnosed, treated and reported to Alberta Health and Wellness by December 31, 1997.

Population figures - Statistics Canada uses population estimates that include non-permanent residents and adjusts for net census under-coverage. Alberta Health and Wellness figures use mid-year population counts based on Alberta Health and Wellness registration files for years up to and including 1996 (1997 population counts are projections). Detailed population counts are included in the appendices.

Abbreviations:

STD - sexually transmitted diseases

NGU/MPC - non-gonococcal urethritis/ mucopurulent cervicitis

PID - pelvic inflammatory disease

PPNG - penicillinase producing *Neisseria gonorrhoeae*

HPV - human papilloma virus

ICD 9 - international classification codes for diseases

RHA(s) - regional health authority(ies)

SE - standard error

2.1 Incidence of *Neisseria Gonorrhoeae*

2.1.1 Canada

Gonorrhea is caused by the bacterium *Neisseria gonorrhoeae*. Gonorrhea usually presents as urethritis in males (although some may be asymptomatic). Many women (70 per cent to 80 per cent) have no initial symptoms and may go untreated and unreported for some time⁴. Approximately 20 per cent of affected women will have uterine invasion resulting in endometriosis, salpingitis or pelvic peritonitis⁵. The costs to the health care system associated with female gonococcal infections are estimated to be in excess of

\$43 million annually; 82 per cent of these costs are attributable to the treatment of PID, ectopic pregnancy and tubal infertility⁶.

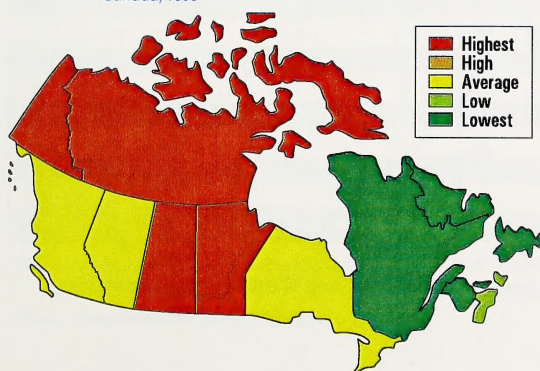
Table 2.1.1 shows that the rate of gonococcal infection in Canada dropped from 52 per 100,000 population in 1990 to 16.8 per 100,000 in 1996. In Alberta, the rate declined from 50.8 per 100,000 in 1990 to 16.9 per 100,000 in 1996. The decline has been attributed to improved diagnostic services, contact tracing and effective treatment. The rate ratio compares individual provincial rates to the overall Canadian rate. Alberta's rate ratio was the sixth highest among the 12 provinces and territories in 1996 (see also Figure 2.1.1).

Table 2.1.1 Rates per 100,000 population of reported gonococcal infections in Canada, by province, 1990 to 1996

Province/Territory	1990	1991	1992	1993	1994	1995	1996	1996 Rate Ratio	Rate Ratio Classification
Newfoundland	8.6	4.4	2.3	0.5	0.5	0.7	0.3	0.02	Lowest
Prince Edward Island	7.7	4.6	2.3	0	0	0	.07	0.04	Lowest
Nova Scotia	34.8	32.7	21.6	9.8	3.7	4.1	10.3	0.61	Low
New Brunswick	8.6	7.3	3.3	1.1	1.7	1.6	5.4	0.32	Lowest
Quebec	29.1	20.2	12.9	9.4	10.1	8.1	6.5	0.39	Lowest
Ontario	63.2	54.3	38.6	28.2	28.6	26.9	20.5	1.22	Average
Manitoba	99.0	118.1	114.9	82.7	64.5	57.8	48.6	2.89	Highest
Saskatchewan	90.3	85.0	72.2	48.8	37.1	38.0	39.6	2.36	Highest
Alberta	50.8	55.0	45.8	31.2	18.6	14.6	16.9	1.01	Average
British Columbia	47.9	41.4	24.0	16.0	13.4	2.2	13.7	0.82	Average
Yukon	326.9	286.2	46.4	71.9	43.2	66.4	31.8	1.89	Highest
Northwest Territories	842.6	701.5	488.4	290.9	222.4	190.0	187.1	11.14	Highest
Canada	52.0	46.2	33.8	23.8	21.1	17.9	16.8	1.00	

Source: Health Canada Health Protection Branch, LCDC. Notifiable Diseases On-Line extracted 11/25/98.

Figure 2.1.1 Rate ratio of reported gonococcal infections by province/territory, Canada, 1996



Source: Health Canada Health Protection Branch, LCDC. Notifiable Diseases On-Line extracted 11/25/98.

2.1.2 Alberta

Distribution and Determinants of Disease

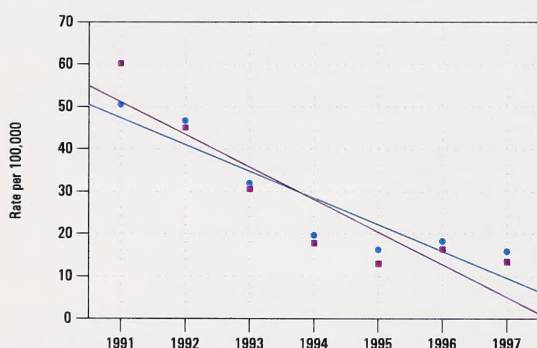
Table 2.1.2 and Figure 2.1.2 show that in Alberta the rate of gonococcal infections in males declined from 50.3 per 100,000 in 1991 to 15.7 per 100,000 in 1997, a drop of 69 per cent. The rate for females declined from 60.1 per 100,000 in 1991 to 13.4 per 100,000 in 1997, a drop of 78 per cent. These rates have historically been highest for males aged 20 to 24 years and for females aged 15 to 19 years.

Table 2.1.2 Rates per 100,000 population of reported gonococcal infection by age and gender, Alberta, 1991 to 1997

		1991	1992	1993	1994	1995	1996	1997
Males	<14	6.5	1.9	0.3	2.8	0.9	0.3	--
	15-19	263.4	107.6	95.6	42.6	28.5	39.8	39.7
	20-24	227.2	141.9	122.4	62.2	56.3	81.6	58.7
	25-29	77.7	119.7	67.8	42.9	50.2	41.3	39.9
	30-39	27.2	59.7	35.8	29.1	23.8	24.4	21.7
	40-59	4.2	21.6	13.4	9.9	7.5	7.5	6.8
	60+	--	5.4	0.6	2.5	0.6	2.4	2.9
	Subtotal	50.3	46.5	31.8	19.5	16.1	18.1	15.7
Females	<14	0.7	8.2	4.0	9.0	6.8	6.7	2.0
	15-19	126.8	282.2	195.4	99.8	74.4	112.0	89.6
	20-24	256.5	170.0	133.9	71.6	76.5	74.3	58.9
	25-29	157.5	67.7	41.3	29.3	12.5	26.6	14.7
	30-39	57.6	17.2	11.3	11.8	5.4	5.2	6.4
	40-59	22.8	4.4	2.5	1.7	0.3	0.6	1.2
	60+	3.5	1.1	--	--	--	--	1.0
	Subtotal	60.1	45.0	30.6	17.8	12.9	16.4	13.4

Source: 1996 and 1997 cases taken from the Alberta Health and Wellness STD database and mid-year populations provided by the Health Surveillance Branch, Alberta Health and Wellness. Rates from 1991 to 1995 taken from previous Sexually Transmitted Disease Services Annual Statistical Reports.

Figure 2.1.2 Rates per 100,000 population of reported gonococcal infections by gender, Alberta, 1991 to 1997

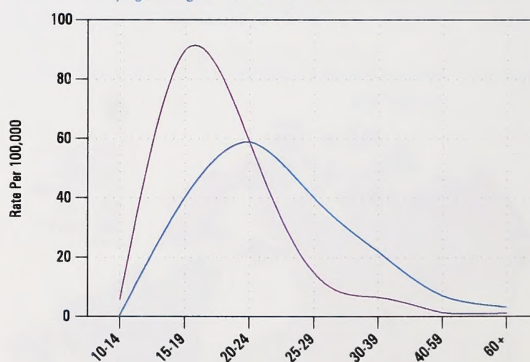


Source: 1996 and 1997 cases taken from Alberta Health and Wellness STD database and mid-year populations provided by the Health Surveillance Branch, Alberta Health and Wellness. Rates from 1991 to 1995 taken from previous Sexually Transmitted Disease Services Annual Statistical Reports.

In 1997, females accounted for 46.2 per cent of reported gonococcal infections and males 53.8 per cent (see Table 2.1.3 and Figure 2.1.3). Females tended, on average, to be younger than males. The majority of male cases were distributed across age categories from 15 to 39 years. The majority of female cases were in the 15 to 24 age category (76.6 per cent) and almost half (46.8 per cent) were among teens aged 15 to 19 years.

The rates per 100,000 population in 1997 were similar for males and females overall, but significant differences were noted within age categories. The highest rate for males was within the 20 to 24 year age category (58.7 per 100,000) and within the 15 to 19 year age category (89.6 per 100,000) for females.

Figure 2.1.3 Rates per 100,000 population of reported gonococcal infections by age and gender, Alberta, 1997



Source: Alberta Health and Wellness STD database using mid-year population.

Table 2.1.3 Incidence and rates per 100,000 population of reported gonococcal infections by age and gender, Alberta, 1997

Age (years)	Male Incidence	Rate	Female Incidence	Rate	Total Incidence	Rate
<1						
1-4						
5-9						
10-14			6	5.7	6	2.8
15-19	41	39.7	88	89.6	129	64.0
20-24	56	58.7	56	58.9	112	58.8
25-29	40	39.9	15	14.7	55	27.2
30-39	53	21.7	16	6.4	69	14.0
40-59	24	6.8	4	1.2	28	4.0
60+	5	2.9	2	1.0	7	1.9
missing data			1		1	
Total	219	15.7	188	13.4	407	14.6

Source: Alberta Health and Wellness STD database using mid-year population.

Table 2.1.4 shows that 31 per cent of gonococcal infections reported in Alberta in 1997 were from the Calgary health region, 39 per cent from the Capital health region and the rest were distributed across the province. Table 2.1.4 and Figure 2.1.4 show the standard error (SE) score for each health authority. The highest SE score was in Capital health region.

Table 2.1.4 Incidence, rates per 100,000 population and standard error scores of gonococcal infections by RHA, Alberta, 1997

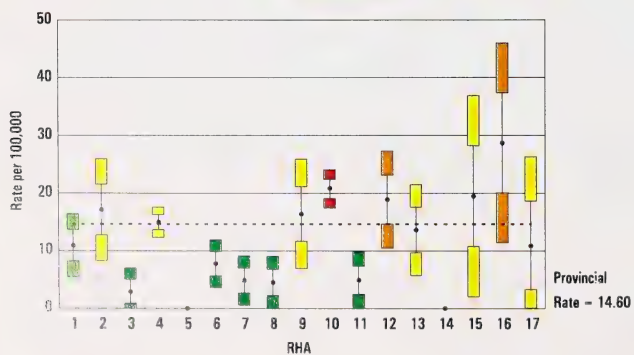
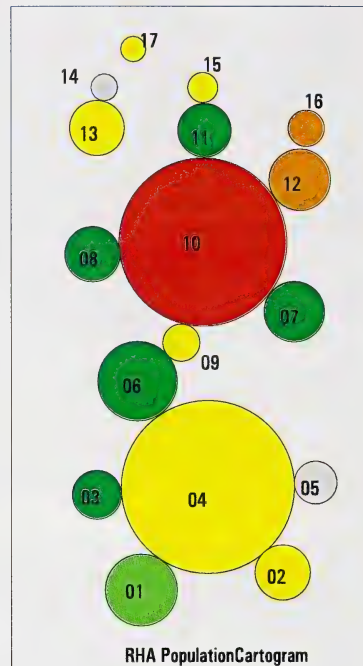
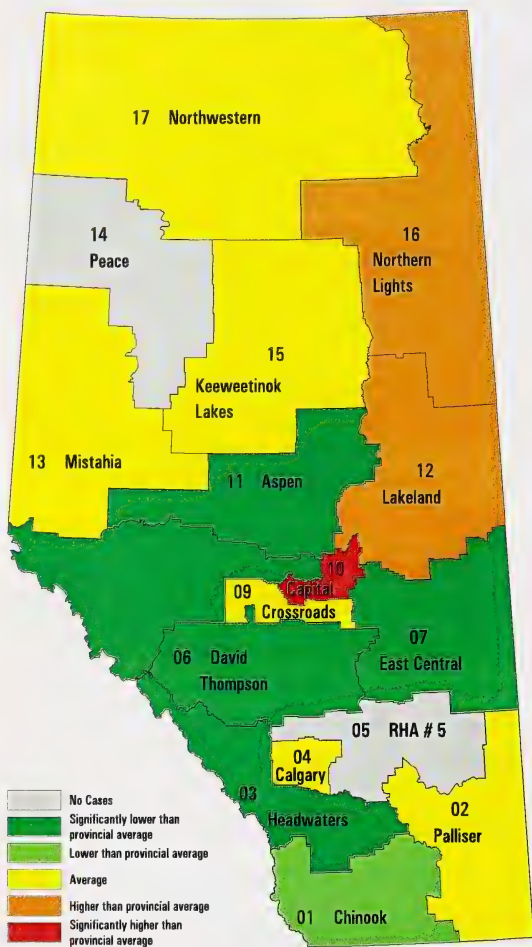
Regional Health Authority	Cases	%	RHA population	Rate per 100,000	SE Score*	Classification
1. Chinook	16	3.9%	145,734	11.0	-1.3	Average
2. Palliser	15	3.7%	86,742	17.3	0.6	Average
3. Headwaters	2	0.5%	69,218	2.9	-5.7	Lower
4. Calgary	128	31.4%	860,575	14.9	0.2	Average
5. RHA 5			51,647			
6. David Thompson	14	3.4%	180,219	7.8	-3.3	Lower
7. East Central	5	1.2%	102,699	4.9	-4.5	Lower
8. Westview	4	1.0%	87,809	4.6	-4.4	Lower
9. Crossroads	12	2.9%	38,866	30.9	1.8	Average
10. Capital	157	38.6%	791,772	19.8	3.3	Higher
11. Aspen	4	1.0%	80,922	4.9	-3.9	Lower
12. Lakeland	20	4.9%	106,185	18.8	1.0	Average
13. Mistahia	12	2.9%	86,246	13.9	-0.2	Average
14. Peace			20,014			
15. Keeweenaw Lakes	5	1.2%	25,347	19.7	0.6	Average
16. Northern Lights	11	2.7%	38,351	28.7	1.6	Average
17. Northwestern	2	0.5%	18,788	10.6	-0.5	Average
Unknown			200			
Total	407	100%	2,791,334	14.6		

*The standard error score (SE) compares the regional rate to the overall provincial rate controlling for the size of the population

**SE classifications are: <-2.0=Lower; -2.0 to 2.0=Average; >2.0=Higher

Source: Alberta Health and Wellness STD database.

Figure 2.1.4 Rate ratio classification of reported gonococcal infections by RHA, Alberta, 1997



In 1997, 57 per cent of people with reported gonococcal infections were heterosexual, 3.7 per cent homosexual and one per cent bisexual (see Table 2.1.5). However, sexual preference was not recorded for 38 per cent of the cases.

Table 2.1.6 shows that approximately 69 per cent of people with gonococcal infections reported in 1997 were single, separated, widowed or divorced and 10 per cent were married or living common-law. This information was not recorded for 21 per cent of cases.

Table 2.1.6 Incidence of reported gonococcal infections by marital status and gender, Alberta, 1997

Marital status	Male	Female	Total	%
Single/separated/divorced/widowed	157	123	280	68.8%
Married/common-law	20	21	41	10.1%
Unknown	42	44	86	21.1%
Total	219	188	407	100%

Source: Alberta Health and Wellness STD database.

History of previous STD was recorded only for those cases seen at provincial STD clinics. Table 2.1.7 shows that of the 95 cases seen at the provincial STD clinics, 54 cases (57 per cent) reported no previous history of STD.

Table 2.1.7 Incidence of reported gonococcal infections by previous STD infections, Alberta, 1997

Previous STD	Male	Female	Total	%
None	31	23	54	13.3%
Gonorrhea	7	2	9	2.2%
NGU/MPC	7		7	1.7%
Herpes genitalis	1		1	0.2%
Chlamydia		5	5	1.2%
Combination of above	12	7	19	4.7%
N/A (physician notification)	161	151	312	76.7%
Total	219	188	407	100%

Source: Alberta Health and Wellness STD database.

Table 2.1.5 Incidence of gonococcal infections by sexual preference and gender, Alberta, 1997

Sexual orientation	Male	Female	Total	%
Heterosexual	117	115	232	57%
Homosexual	15		15	3.7%
Bisexual	4		4	1%
N/A (child < 12 years)				0%
Not recorded	83	73	156	38%
Total	219	188	407	100%

Source: Alberta Health and Wellness STD database.

Table 2.1.8 Incidence of reported gonococcal infections by place of exposure, Alberta, 1997

Place of exposure	1996	1997
Alberta	440	392
Other Canada	6	4
U.S./Caribbean/S. America	8	
Asia	3	2
Europe		1
Unknown	15	8
Total	472	407

Source: Alberta Health and Wellness STD database.

Table 2.1.8 shows that of the 407 gonococcal infection cases reported in 1997, 392 (96 per cent) were reported as contracted in Alberta. This figure is similar to the 1996 figure of 93 per cent.

Treatment and Follow-up

Table 2.1.9 shows that the site of gonococcal infection most frequently reported in Alberta in 1997 was genito-urinary (94 per cent of male cases and 97 per cent of female cases).

Table 2.1.9 Incidence of reported gonococcal infections by site of infection, age and gender, Alberta, 1997

Gender	Age (years)	Genito-urinary	Rectal	Pharyngeal	Other	Multi-site	Total
Males	0-14						0
	15-19	40			1		41
	20-24	51	2		1	2	56
	25-29	38		1		1	4
	30-39	49	2	2			53
	40-59	23		1			24
	60+	5					5
	subtotal	206	4	4	2	3	219
Females	0-14	5	1				6
	15-19	86	1			1	88
	20-24	54	2				56
	25-29	15					15
	30-39	16					16
	40-59	4					4
	60+	2					2
	missing data	1					
	subtotal	183	4	0	0	1	188
Total		389	8	4	2	4	407

Source: Alberta Health and Wellness STD database.

Antimicrobial resistance is an important consideration when treating *Neisseria gonorrhoeae*.

Table 2.1.10 Incidence of penicillinase-producing *Neisseria gonorrhoeae* (PPNG), Alberta, 1997

Gonococcal resistance:	n=	%
Beta-lactamase - negative	390	95.8%
Beta-lactamase - positive	4	1.0%
Not done/unkown	13	3.2%
Total	407	100%

Source: Alberta Health and Wellness STD database.

Table 2.1.10 shows that there were only four cases of penicillinase-producing *Neisseria gonorrhoeae* (PPNG) reported in Alberta in 1997, compared to eight cases in 1996.

Table 2.1.11 Incidence of penicillinase-producing *Neisseria gonorrhoeae* (PPNG) by place of exposure, Alberta, 1996 and 1997

Year of Infection	Place of Exposure	Total
	Alberta	Asia
1996	2	6
1997	2	2

Source: Alberta Health and Wellness STD database.

Table 2.1.11 shows that two of the eight PPNG cases identified in 1996 were contracted in Alberta. In 1997, two of the four cases were contracted in Alberta and the other two in Asia.

Table 2.1.12 and Figure 2.1.5 show that seven per cent of gonococcal infections reported in Alberta in 1997 were resistant to penicillin, 34 per cent to tetracycline and two cases (0.5 per cent) to ciprofloxacin. No cases were resistant to ceftriaxone. In 1996, only 23 per cent of cases were resistant to tetracycline compared to 34 per cent in 1997. Similarly, only 3.5 per cent were resistant to penicillin in 1996 compared to just over seven per cent in 1997.

Overall, 134 cases (33 per cent) were resistant to one or more of the drugs listed, a percentage considerably higher than previous years. The overall rate of resistance in 1995 was 20 per cent and 21 per cent in 1996.

Table 2.1.12 Incidence of reported gonococcal infections by drug resistance, Alberta, 1996 and 1997

1997	Sensitive	Intermediate	Resistant	Unknown	Total	% Resistant
Penicillin	60	308	28	11	407	7.1%
Tetracycline	108	149	131	19	407	33.8%
Ceftriaxone	399	1		7	407	0
Ciprofloxacin	395	1	2	9	407	0.5%
1996	Sensitive	Intermediate	Resistant	Unknown	Total	% Resistant
Penicillin	64	373	16	19	472	3.5%
Tetracycline	147	157	92	76	472	23.2%
Ceftriaxone	454	1		17	472	0
Ciprofloxacin	447		7	18	472	1.5%

Source: Alberta Health and Wellness STD database.

In 1996, 81 per cent of gonococcal infections were treated with ciprofloxacin or ceftriaxone as the drug of choice (see Table 2.1.13). In 1997, azithromycin (coded as "other") was added to the list of drugs and was used in combination with ciprofloxacin and ceftriaxone. In this year, 90 per cent of cases were treated with ciprofloxacin, ceftriaxone, or a combination of azithromycin and these drugs.

Table 2.1.13 Incidence of reported gonococcal infections by drug treatment prescribed, Alberta, 1997

Treatment	1996		1997	
	Number	%	Number	%
Ciprofloxacin/Ofloxacin & Tetra/Doxy	315	66.7%	107	26.3%
Ciprofloxacin/Ofloxacin	29	6.1%	28	6.9%
Ciprofloxacin/Ofloxacin & Erythromycin	7	1.5%	9	2.2%
Ceftriaxone	12	2.5%	4	1.0%
Ceftriaxone & Tetra/Doxy	7	1.5%	4	1.0%
Ceftriaxone & Erythromycin	12	2.5%	4	1.0%
Other*	31	6.6%	210	51.6%
Tetra/Doxy	32	6.8%	8	2.0%
Ampicillin/Probenecid	2	0.4%	2	0.5%
Ampicillin & Tetra/Doxy	1	0.2%	1	0.2%
Ampicillin & Erythromycin	1	0.2%	2	0.5%
Erythromycin	8	1.7%	7	1.7%
Unknown	15	3.2%	21	5.2%
Total	472	100%	407	100%

*The most common "other" was Azithromycin & Ciprofloxacin.

Source: Alberta Health and Wellness STD database.

Almost 62 per cent of people with gonococcal infections reported in 1997 provided some information about their sexual contacts during their infectious period. Most people reported only one contact, 10 per cent reported two contacts and fewer than one per cent said they had three or more contacts. Investigators were able to trace contacts in only 35.5 per cent of cases reported because insufficient information was provided for many cases. The percentage of both cases reporting contacts and investigable contacts was lower in 1997 compared to 1996 (see Table 2.1.14).

Table 2.1.14 Percentage of reported gonococcal infections by number of contacts (reported and investigable), Alberta, 1997

	1996	1997
% of cases who reported contacts	67.6%	61.7%
% of cases with investigable contacts	40.9%	35.4%

Source: Alberta Health and Wellness STD database.

Table 2.1.15 shows that all but two cases of gonococcal infection reported in males in Alberta in 1997 had positive cultures and just over one-half (51 per cent) had positive smears. The two cases of gonococcal infections in males with no positive culture were confirmed by positive smear only. All females had positive gonococcal cultures.

Table 2.1.15 Incidence of reported gonococcal infections by test positivity, Alberta, 1997

	Type of test	Test Outcome			Total
		Positive	Negative	Unknown	
Male	GC smear	112	6	101	219
	GC culture	217	1	1	219
Female	GC smear	5	8	175	188
	GC culture	188	-	-	188

Source: Alberta Health and Wellness STD database.

Table 2.1.16 Incidence of gonococcal infections by reporting agency, Alberta, 1997

Reporting Agency	1996	1997
Physician	294	268
Edmonton clinic	63	53
Calgary clinic	62	36
Ft. McMurray clinic	7	7
Positive lab result only	46	43
Total	472	407

Source: Alberta Health and Wellness STD database.

In 1997, 268 (66 per cent) cases of gonococcal infection were reported by physicians, 53 (13 per cent) by the Edmonton STD clinic, 36 (nine per cent) by the Calgary STD clinic, seven (1.7 per cent) by the Fort McMurray clinic. The remaining 10.6 per cent were positive lab tests taken by physicians but a notification form was not received (see Table 2.1.16).

2.2 Incidence of Syphilis

2.2.1 Canada

Syphilis is caused by the spirochete *Treponema pallidum*. Disease progression is divided into the following stages: primary, secondary, early latent, late latent and tertiary. For the purposes of disease surveillance, these stages are generally grouped into three categories: infectious syphilis (primary, secondary and early latent stages), non-infectious syphilis (late latent and tertiary stages) and congenital syphilis (transmission of *Treponema pallidum* from an infected woman to her fetus)⁷.

Canada is close to eliminating syphilis, especially among domestic cases. This is largely due to successful efforts at screening, education, diagnosis and management.

Table 2.2.1 includes all cases of syphilis (infectious, non-infectious and congenital) for Canada from 1980 to 1996. The total number of cases decreased by half between 1990 and 1996. More importantly, LCDC reported that the percentage of "early primary" (infectious) cases declined from 33 per cent of total cases in 1990 to just under 11 per cent in 1996. LCDC reported that none⁸ of the 40 cases in Alberta in 1996 were classified as "early primary."

Table 2.2.1 Incidence of reported cases of syphilis by province/territory, Canada, 1990 to 1996

	1990	1991	1992	1993	1994	1995	1996
Newfoundland	2	-	2	1	-	1	-
Prince Edward Island	-	-	1	-	-	-	-
Nova Scotia	3	10	25	26	32	16	8
New Brunswick	26	22	27	16	16	11	15
Quebec	200	194	145	103	95	75	59
Ontario	979	1,048	691	554	374	351	519
Manitoba	13	18	32	16	14	21	2
Saskatchewan	-	12	18	5	18	22	8
Alberta	100	74	100	71	60	38	40
British Columbia	120	48	20	11	14	10	105
Yukon	-	2	3	-	1	-	-
Northwest Territories	1	1	-	1	1	-	-
Canada	1,444	1,429	1,064	805	625	545	756

Note: Alberta data show 41 cases of syphilis in 1996 compared to the 40 cases recorded by LCDC. Alberta data show one case as infectious, LCDC none.

Source: Health Canada Health Protection Branch, LCDC. Notifiable Diseases On-Line extracted 11/30/98

2.2.2 Alberta

Distribution and determinants of disease

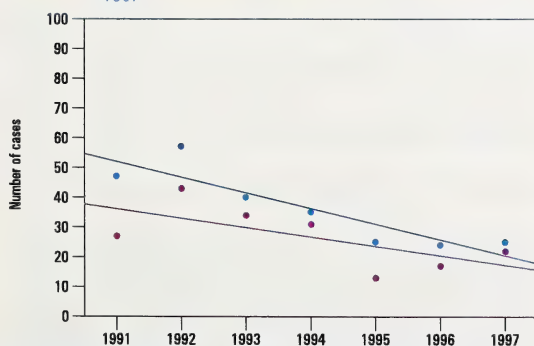
Table 2.2.2 and Figure 2.2.1 show that there were 47 cases of syphilis reported in Alberta in 1997, up from 41 in 1996 and 38 in 1995. The male to female ratio was 1.1 in 1997 and the majority of cases were in those aged 30 years and older.

The rates per 100,000 population of reported syphilis in Alberta in 1997 were highest among males aged 30 to 39 or 60 years or older. The highest rates among females were in the 25 to 39 or 60 and older age categories (see Table 2.2.3 and Figure 2.2.2).

Table 2.2.2 Incidence of reported cases of syphilis by age and gender, Alberta, 1991 to 1997

Source: 1996 and 1997 figures taken from Alberta Health and Wellness STD database.

Figure 2.2.1 Incidence of reported syphilis cases by gender, Alberta, 1991 to 1997



Source: 1996 and 1997 figures taken from Alberta Health and Wellness STD database.

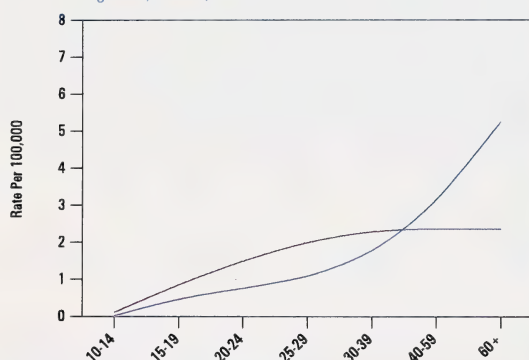
Rates from 1991 to 1995 taken from previous Sexually Transmitted Disease Services Annual Statistical Reports.

Table 2.2.3 Incidence and rates per 100,000 population of reported syphilis by age and gender, Alberta, 1997

Age (years)	Male Incidence	Rate	Female Incidence	Rate	Total Incidence	Rate
<1						
1-4						
5-9						
10-14						
15-19	1	1.0	1	1.0	2	1.0
20-24		0	1	1.1	1	0.5
25-29	1	1.0	3	2.9	4	2.0
30-39	8	3.3	6	2.4	14	2.8
40-59	5	1.4	6	1.8	11	1.6
60+	10	5.8	5	2.4	15	4.0
Total	25	1.8	22	1.6	47	1.7

Source: Alberta Health and Wellness STD database.

Figure 2.2.2 Rates per 100,000 population of reported syphilis by age and gender, Alberta, 1997



Source: Alberta Health and Wellness STD database.

In 1996, 95 per cent of syphilis cases were reported from the Calgary or Capital health authorities and five per cent from the remainder of the province. In 1997, only 79 per cent of cases were reported from these two health authorities and 21 per cent were from other regions within the province (see Table 2.2.4).

Table 2.2.4 Incidence of syphilis by reporting RHA, Alberta, 1996 and 1997

Regional Health Authority	1996		1997	
	Cases	%	Cases	%
4 Calgary	25	61.0%	24	51.1%
10 Capital	14	34.1%	13	27.7%
Other northern regions	1	2.4%	3	6.4%
Other southern regions	1	2.4%	7	14.9%
Total	41	100%	47	100%

Source: Alberta Health and Wellness STD database.

Table 2.2.5 Incidence of reported syphilis by type of place of exposure, Alberta, 1996 and 1997

Place of exposure	1996	1997
Alberta	9	15
B.C.	1	1
Quebec	1	
U.S.A.	1	
Caribbean	1	3
S. America	3	
Europe	2	
Asia	4	10
Africa	7	2
Other	1	4
Unknown/not stated	11	12
Total	41	47

Source: Alberta Health and Wellness STD database.

Outside of Alberta, the countries most often reported as the place of exposure to syphilis over the past two years were in Asia, Africa, the Caribbean, and South America. In fact, 10 cases (21 per cent) reported in 1997 were from Asia (see Table 2.2.5).

Table 2.2.6 Incidence of reported syphilis by time lived in Canada, Alberta, 1996 and 1997

Time lived in Canada	1996	1997
< 1 year	11	11
1 - 2 years	3	4
3 - 5 years	4	3
> 5 years	14	10
Unknown/not stated	9	19
Total	41	47

Source: Alberta Health and Wellness STD database.

Approximately one-quarter of syphilis cases reported in 1997 were in Canada less than one year. These cases are individuals who came from endemic areas of the world and were identified during immigration screening. Information on length of time in Canada was not recorded for several cases (see Table 2.2.6).

Table 2.2.7 Incidence of reported syphilis by country of birth, Alberta, 1996 and 1997

Country of birth	1996	1997
U.S.A.		1
Caribbean	3	5
S. America	4	1
Europe	4	2
Asia	9	10
Africa	9	2
Other	3	7
Unknown/not stated	9	19
Total	41	47

Source: Alberta Health and Wellness STD database

Table 2.2.7 shows that 21 per cent of syphilis cases reported both in 1996 and 1997 were from Asia. Other places of birth reported included Africa, Caribbean, South America, Europe and the USA. Information on place of birth was not recorded for several cases.

Treatment and follow-up

Table 2.2.10 shows that 93 per cent of reported syphilis cases in Alberta in 1996 and 81 per cent in 1997 were classified as “late latent” cases. The number of infectious cases was seven in 1997, up from one case in 1996.

Table 2.2.10 Incidence of reported syphilis by type of infection and age, Alberta, 1996 and 1997

Year	Age (years)	primary	secondary	early latent	late latent	CNS	congenital	other
1996	0-14							
	15-19				1			
	20-24				2			
	25-29				6			
	30-39	1			9	1		
	40-59				13			
	60+				7		1	
	Total	1	0	0	38	1	1	0
1997	0-14							
	15-19	1		1				
	20-24				1			
	25-29	1			3			
	30-39	1		2	9	1		1
	40-59		1		10			
	60+				15			
	Total	3	1	3	38	1	0	1

Source: Alberta Health and Wellness STD database

Table 2.2.8 Incidence of reported syphilis by sexual preference, Alberta, 1996 and 1997

Sexual orientation	1996	1997
Heterosexual	32	39
Homosexual	1	1
Bisexual	1	
Not recorded	7	7
Total	41	47

Source: Alberta Health and Wellness STD database

Table 2.2.8 shows that roughly 80 per cent of syphilis cases reported in 1996 and 1997 were among heterosexuals.

Table 2.2.9 Incidence of reported syphilis by marital status, Alberta, 1996 and 1997

Marital status	1996	1997
Single	7	6
Married/common-law	28	28
Separated/divorced/widowed	1	6
Unknown	5	7
Total	41	47

Source: Alberta Health and Wellness STD database

Table 2.2.9 shows that 68 per cent of syphilis cases reported in 1996 and 58 per cent of cases reported in 1997 were married or living common-law.

Table 2.2.11 Incidence of reported syphilis by drug treatment prescribed, Alberta, 1996 and 1997

Drug treatment	1996		1997	
	Cases	%	Cases	%
Benzathine penicillin	37	90.2%	39	83.0%
Doxycycline	3	7.3%	7	14.9%
Other	1	2.4%	1	2.1%
Total	41	100%	47	100%

Source: Alberta Health and Wellness STD database

Benzathine penicillin followed by doxycycline is the drug of choice when treating all types of syphilis except neurosyphilis. The majority of syphilis cases seen in Alberta in the last two years have been treated with benzathine penicillin.

Doxycycline was used in just over seven per cent of the cases in 1996 and 15 per cent in 1997 (see Table 2.2.11).

Almost 64 per cent of people with syphilis reported in 1997 provided some information about their sexual contacts. Investigators had sufficient information to trace contacts in 45 per cent of cases reported. The percentage of cases reporting contacts and investigable contacts were lower in 1997 compared to 1996 (see Table 2.2.12). Contact tracing is not undertaken in non-infectious cases.

Table 2.2.12 Incidence of reported syphilis by number of contacts, Alberta, 1997

	1996	1997
Cases who reported contacts	70.7%	66.0%
Cases with investigable contacts	58.5%	44.7%

Source: Alberta Health and Wellness STD database

Table 2.2.13 Incidence of reported syphilis by reporting agency, Alberta, 1996 and 1997

Reporting agency	1996	1997
Physician	39.0%	42.6%
Edmonton clinic	9.8%	21.3%
Calgary clinic	51.2%	36.2%
Total	100%	100%

Source: Alberta Health and Wellness STD database

A large number of syphilis cases were referred to infectious disease specialists in provincial STD clinics for diagnosis and management. In 1997, approximately 43 per cent of syphilis cases were reported by physicians and 57 per cent were managed at the STD clinics. The number of cases managed at the Edmonton clinic increased in 1997 while those seen at the Calgary clinic decreased.

2.3 Incidence of *Chlamydia Trachomatis*

2.3.1 Canada

Genital chlamydia became notifiable in Alberta in 1989 and nationally in 1990 and has been the most commonly reported bacterial STD in Canada since 1991. It is estimated that 70 per cent of cases in women and 30 per cent of cases in males may be asymptomatic and that the true number of infections may be two to three times higher than reported. In females, untreated chlamydia can lead to pelvic inflammatory disease (PID) and the subsequent complications of ectopic pregnancy, tubal infertility and chronic pelvic pain. Untreated infection in males can lead to epididymitis, infertility and Reiter's syndrome. The infection can also be passed from mother to infant and is the primary pathogen responsible for infant infectious conjunctivitis (40 per cent) and infant pneumonia (73 per cent). The cost of treating chlamydial infections in Canada has been estimated as high as \$123 million annually, mostly attributable to PID and its complications.^{9,10,11,12}

Chlamydial infections are caused by the bacterium *Chlamydia trachomatis*. Screening is an integral part of chlamydial surveillance because a high proportion of cases are asymptomatic.

There were 34,399 cases of genital chlamydia reported in Canada in 1996, a rate of 114.8 cases per 100,000 population (see Table 2.3.1). The rate in Canada declined by 37 per cent between 1991 and 1996. Females accounted for approximately three-quarters of reported cases but the under-representation of males is most likely due to the high proportion of asymptomatic cases among males and the lack of screening opportunities for men compared with those for women.

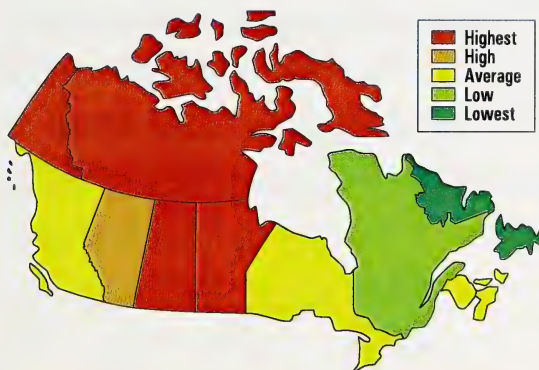
The highest rates in 1996 were seen in the Northwest Territories (1,345.8 per 100,000 population — 11 times higher than the national average), Yukon (458.6 — four times the national average), Manitoba (224.4), and Saskatchewan (219.3). The lowest rates were seen in Newfoundland and Quebec.

Table 2.3.1 Rates per 100,000 population and rate ratios of reported *Chlamydia trachomatis* in Canada by province, 1991 to 1996.

	1991	1992	1993	1994	1995	1996	1996 Rate Ratio	Rate Ratio Classification
Newfoundland	103.4	78.2	79.7	61.1	47.3	48.8	0.4	Lowest
Prince Edward Island	73.7	156.7	105.6	81.0	82.3	95.8	0.8	Average
Nova Scotia	247.9	181.4	158.1	154.4	124.4	113.9	1.0	Average
New Brunswick	0	183.9	142.0	120.8	100.2	109.3	1.0	Average
Quebec	194.7	149.6	133.8	107.6	96.1	90.1	0.8	Low
Ontario	138.0	127.1	130.7	123.2	108.9	94.2	0.8	Average
Manitoba	415.2	300.2	292.0	271.9	264.4	224.4	2.0	Highest
Saskatchewan	330.2	242.3	230.2	245.7	230.8	219.3	1.9	highest
Alberta	274.0	246.1	195.3	184.4	182.7	174.3	1.5	High
British Columbia	101.5	194.7	150.0	146.6	123.7	106.7	0.9	Average
Yukon	724.9	685.7	518.8	508.3	518.3	458.6	4.0	Highest
Northwest Territories	1,919.4	1,602.5	1,545.3	1,558.3	1,389.1	1,345.8	11.7	Highest
Canada	182.2	169.2	153.1	141.0	126.8	114.8	1.0	

Source: Health Canada Health Protection Branch, LCDC. Notifiable Diseases On-Line extracted 1/12/98.

Figure 2.3.1 Rate ratio of reported Chlamydia infections by province/territory, Canada, 1996



Source: Health Canada Health Protection Branch, LCDC. Notifiable Diseases On-Line extracted 1/12/98.

2.3.2 Alberta

Distribution and determinants of disease

In Alberta, the number of reported cases of chlamydia declined from 6,936 in 1991 to 4,547 in 1997. Table 2.3.2 and Figure 2.3.2 show that overall, rates of chlamydial infections declined 39 per cent for males and 41 per cent for females over this same period. The majority of cases occurred among those aged 15 to 29.

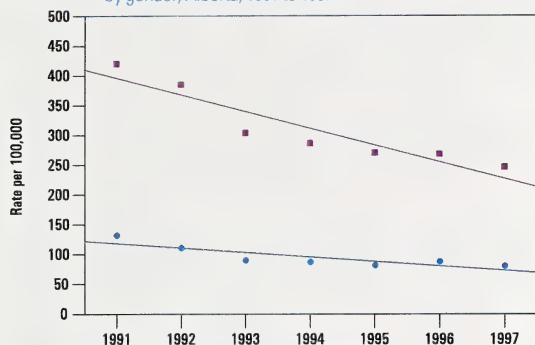
Table 2.3.2 Rate per 100,000 population of reported *Chlamydia trachomatis* by age and gender, Alberta, 1991 to 1997

		1991	1992	1993	1994	1995	1996	1997
Males	<10	*	*	*	2.8	1.4	1.9	0.9
	10-14	*	*	*	-	2.7	2.7	0.9
	15-19	332.6	302.5	249.5	233.9	246.4	226.0	179.1
	20-24	695.6	602.2	471.6	510.5	506.0	500.1	498.9
	25-29	320.4	260.2	244.1	551.1	187.3	269.0	215.3
	30-39	98.3	70.8	57.4	59.4	55.8	65.8	63.5
	40-59	16.9	16.3	13.8	10.9	12.0	15.2	17.1
	60+	1.4	3.4	1.3	0.6	1.8	1.8	3.5
	Subtotal	131.0	109.7	89.2	86.3	80.5	86.6	79.1
Females	<10	*	*	*	5.4	1.9	2.0	2.5
	10-14	*	*	*	86.0	64.5	49.7	37.7
	15-19	2337.9	2216.1	1805.7	1718.0	1709.5	1626.9	1411.0
	20-24	2091.1	1948.9	1495.9	1468.7	1475.3	1471.4	1392.6
	25-29	609.5	541.6	450.9	396.7	384.8	459.0	418.8
	30-39	144.8	117.7	105.3	93.1	94.2	83.3	85.7
	40-59	17.5	22.3	13.7	15.0	9.4	9.8	14.0
	60+	3.4	3.9	1.6	3.1	1.0	2.5	1.5
	Subtotal	419.9	385.0	303.6	286.1	270.3	268.0	246.1

*rates for comparable age categories not available

Source: 1996 and 1997 figures taken from Alberta Health and Wellness STD database. Rates from 1991 to 1995 taken from previous Sexually Transmitted Disease Services Annual Statistical Reports.

Figure 2.3.2 Rates per 100,000 population of reported *Chlamydia trachomatis* by gender, Alberta, 1991 to 1997



*rates for comparable age categories not available

Source: 1996 and 1997 figures taken from Alberta Health and Wellness STD database. Rates from 1991 to 1995 taken from previous Sexually Transmitted Disease Services Annual Statistical Reports.

In 1997, females accounted for 76 per cent of reported chlamydial infections and males 24 per cent (see Table 2.3.3 and Figure 2.3.3). Females tended, on average, to be younger than males. The majority of male cases were 20 to 24 years old, females 15 to 24 years. In fact, 79 per cent of all female cases were among women aged 15 to 24 years.

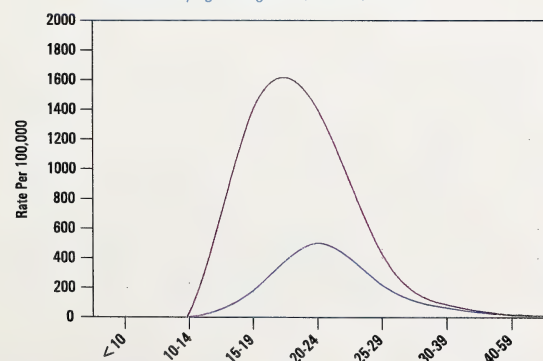
The rates per 100,000 population were over three times higher for females than for males in 1997. Many of the female cases would have been detected during screening for other reasons and explains, at least in part, the high rate among females. The highest rates were seen in males aged 20 to 24 years (498.9 per 100,000) and in females aged 15 to 24 years (approximately 1,400 per 100,000). The six cases in infants under one year were likely detected as result of neonatal screening programs.

Table 2.3.3 Incidence and rates per 100,000 population of *Chlamydia trachomatis* by age and gender, Alberta, 1997

Age (years)	Male Incidence	Male Rate	Female Incidence	Female Rate	Total Incidence	Total Rate
<1	2	10.2	4	22.2	6	16.0
1-4						
5-9			1	0.9	1	0.5
10-14	1	0.9	40	37.7	41	18.8
15-19	185	179.1	1386	1411.0	1571	779.6
20-24	476	498.9	1324	1392.6	1800	945.0
25-29	216	215.3	426	418.8	642	317.7
30-39	155	63.5	213	85.7	368	74.7
40-59	60	17.1	48	14.0	108	15.6
60+	6	3.5	3	1.5	9	2.4
missing data			1		1	
Total	1101	79.1	3446	246.1	4547	162.9

Source: Alberta Health and Wellness STD database.

Figure 2.3.3 Rates per 100,000 population of *Chlamydia trachomatis* infections by age and gender, Alberta, 1997



Source: Alberta Health and Wellness STD database.

Table 2.3.4 and Figure 2.3.4 shows the SE score for chlamydial infections for each health authority in 1997. The highest SE scores were in the northern regions of the province (Mistahia, Peace, Keeweenok Lakes, Northern Lights, and Northwestern health regions) and the Crossroads and David Thompson health regions.

Table 2.3.4 Incidence, rates per 100,000 population and standard error scores* of *Chlamydia trachomatis* infections by RHA, Alberta, 1997

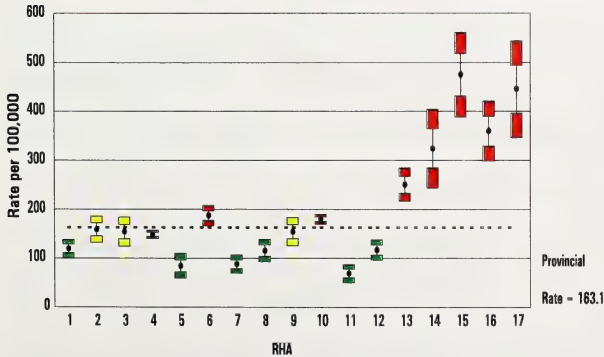
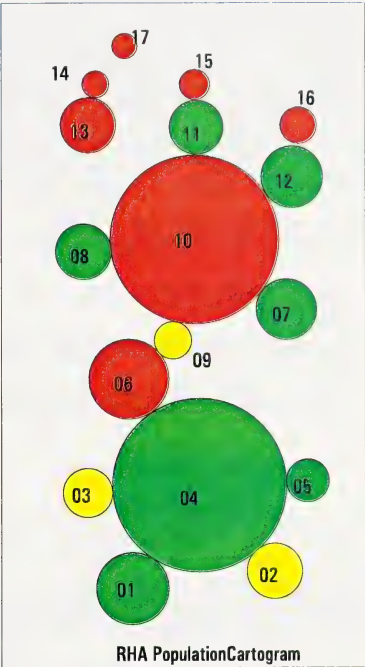
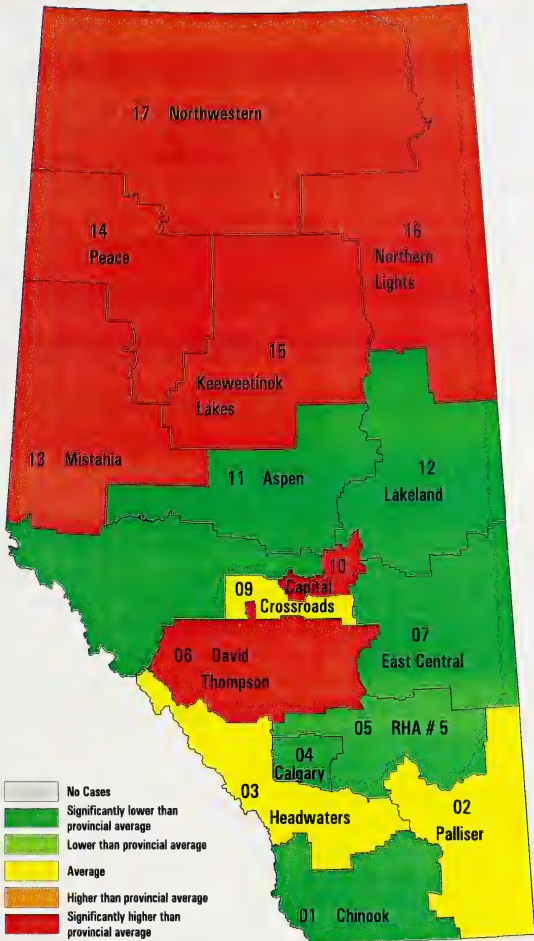
Regional Health Authority	Cases	%	RHA population	Rate per 100,000	SE score*	Score classification**
1 Chinook	175	3.8%	145,734	120.1	-4.7	Lower
2 Palliser	139	3.1%	86,742	160.2	-0.2	Average
3 Headwaters	107	2.4%	69,218	154.6	-0.6	Average
4 Calgary	1271	28.0%	860,575	147.7	-3.7	Lower
5 RHA 5	44	1.0%	51,647	85.2	-6.1	Lower
6 David Thompson	338	7.4%	180,219	187.5	2.4	Higher
7 East Central	91	2.0%	102,699	88.6	-8.0	Lower
8 Westview	102	2.2%	87,809	116.2	-4.1	Lower
9 Crossroads	113	2.5%	38,866	290.7	4.7	Higher
10 Capital	1358	29.9%	791,772	171.5	1.9	Average
11 Aspen	56	1.2%	80,922	69.2	-10.1	Lower
12 Lakeland	124	2.7%	106,185	116.8	-4.4	Lower
13 Mistahia	221	4.9%	86,246	256.2	5.4	Higher
14 Peace	66	1.5%	20,014	329.8	4.1	Higher
15 Keeweenaw Lakes	122	2.7%	25,347	481.3	7.3	Higher
16 Northern Lights	138	3.0%	38,351	359.8	6.4	Higher
17 Northwestern	82	1.8%	18,788	436.4	5.7	Higher
missing data		0%	200			
Total	4547	100%	2,791,334	162.9		

*The standard error score (SE) compares the regional rate to the overall provincial rate controlling for the size of the population

**SE classifications are; <-2.0=Lower; -2.0 to 2.0=Average; >2.0=Higher

Source: Alberta Health and Wellness STD database.

Figure 2.3.4 Rate ratio classification of *Chlamydia trachomatis* infections by RHA, Alberta, 1997



Source: Alberta Health and Wellness STD database.

Table 2.3.5 Incidence of *Chlamydia trachomatis* cases by sexual preference and gender, Alberta, 1997

Sexual orientation	1996	1997
Heterosexual	3116	3029
Homosexual	4	1
Bisexual	4	7
N/A (child < 12 years)	8	7
Not recorded	1744	1503
Total	4876	4547

Source: Alberta Health and Wellness STD database.

Sexual preference was recorded for only two-thirds of the cases seen in 1996 and 1997. Of the two-thirds recorded, 99.5 per cent reported their sexual preference as heterosexual (see Table 2.3.5).

In 1997, 75 per cent of males and 66 per cent of females reported with chlamydial infections were single, separated, divorced or widowed; 10 per cent of males and 15 per cent of females were married or common-law; and the remainder did not have their marital status recorded (see Table 2.3.6).

Table 2.3.6 Incidence of *Chlamydia trachomatis* cases by marital status and gender, Alberta, 1997

Marital status	Male		Female	
Single/separated/divorced/widowed	829	75.3%	2262	65.6%
Married/common-law	107	9.7%	499	14.5%
Unknown	165	15.0%	685	19.9%
Total	1101	100%	3446	100%

Source: Alberta Health and Wellness STD database.

Table 2.3.7 Incidence of *Chlamydia trachomatis* cases by place of exposure, Alberta, 1996 and 1997

Place of Exposure	1996	1997
Alberta	4749	4404
Other Canada	21	24
U.S./Caribbean/S. America	6	12
Asia	6	6
Europe	5	5
Unknown	89	96
Total	4876	4547

Source: Alberta Health and Wellness STD database.

Table 2.3.7 shows that the vast majority (97 per cent) of people with reported chlamydia in 1997 acquired their infection locally.

Table 2.3.8 Incidence of *Chlamydia trachomatis* cases by racial origin and gender, Alberta, 1997

Racial Origin	Male		Female	
Caucasian	662	60.1%	1793	52.0%
Black	74	6.7%	47	1.4%
Oriental	32	2.9%	70	2.0%
Other Asiatic	4	0.4%	5	0.1%
NA Indian	106	9.6%	569	16.5%
Metis	4	0.4%	16	0.5%
Other	30	2.7%	60	1.7%
Unknown	189	17.2%	886	25.7%
Total	1101	100%	3446	100%

Source: Alberta Health and Wellness STD database.

Over half of the cases of chlamydia reported in 1997 were Caucasian (60 per cent of males and 52 per cent of females), 9.6 per cent of males and 16.5 per cent of females were North American Indian, and 6.7 per cent of males and 1.4 per cent of females were black. Racial origin was not recorded for 17 per cent of males and 26 per cent of females with reported chlamydia in 1997 (see Table 2.3.8).

Treatment and follow-up

Table 2.3.9 shows that the most frequent site of chlamydial infection reported in both 1996 and 1997 was genito-urinary. Of the few cases infecting the eye, over half were among infants.

Table 2.3.9 Incidence of *Chlamydia trachomatis* infections by site of infection, age and gender, Alberta, 1997

Year	Site of Infection:					Total
	Genito-urinary	Rectal	Eye	Other	Multiple	
1996	4862	1	11	1	1	4876
1997	4537		10			4547

Source: Alberta Health and Wellness STD database.

In 1996, 93 per cent of the cases of chlamydial infections were treated with tetracycline, doxycycline, erythromycin or various combinations of these drugs (see Table 2.3.10). In 1997, azithromycin was added to the list of drugs of choice for the treatment of chlamydia and was coded as "other." During 1997, 96 per cent of cases were treated with one or more of these drugs of choice.

Table 2.3.10 Incidence of *Chlamydia trachomatis* cases by drug treatment prescribed, Alberta, 1997

Drug treatment	1996		1997	
Ciprofloxacin/Ofloxacin & Tetra/Doxy	1,257	25.8%	388	8.5%
Tetra/Doxy	2,427	49.8%	767	16.9%
Ciprofloxacin/Ofloxacin & Erythromycin	33	0.7%	14	0.3%
Ampicillin & Tetra/Doxy	2	0.0%	0	0.0%
Ampicillin & Erythromycin	2	0.0%	1	0.0%
Ceftriaxone & Tetra/Doxy	24	0.5%	9	0.2%
Ceftriaxone & Erythromycin	14	0.3%	6	0.1%
Spectromycin & Erythromycin	1	0.0%	0	0.0%
Erythromycin	751	15.4%	641	14.1%
Other*	164	3.4%	2,527	55.6%
Ciprofloxacin/Ofloxacin	12	0.2%	12	0.3%
Ampicillin/Probenecid	2	0.0%	2	0.0%
Ceftriaxone	3	0.1%	5	0.1%
Unknown	184	3.8%	175	3.8%
Total	4,876	100%	4,547	100%

*The most frequently used "other" drug was Azithromycin.

Source: Alberta Health and Wellness STD database.

Almost 68 per cent of people with chlamydia reported in 1997 provided some information about their sexual contacts during their infectious period. Investigators were able to trace contacts for only 45 per cent of cases reported because insufficient information was provided. The percentages of both cases reporting contacts and investigable contacts in 1997 were comparable to 1996 percentages (see Table 2.3.11).

Table 2.3.11 Incidence of *Chlamydia trachomatis* cases by number of contacts (reported and investigable), Alberta, 1997

	1996	1997
Percent of cases who reported contacts	65.6%	68.3%
Percent of cases with investigable contacts	43.5%	44.7%

Source: Alberta Health and Wellness STD database.

Table 2.3.12 shows the number of cases of chlamydia by the type of test conducted for males and females. In 1997, 93.7 per cent of males had a positive enzyme immuno-assay, 4.4 per cent a positive direct fluorescent antibody test and 1.9 per cent a positive cell culture. In females, 93.3 per cent had a positive enzyme immuno-assay, 3.1 per cent a positive direct fluorescent antibody test and 3.6 per cent a positive cell culture.

Table 2.3.12 Incidence of *Chlamydia trachomatis* cases by test positivity, Alberta, 1997

1996	Type of test	Test outcome				Total
		Positive	Negative	Not done	Unknown	
Male	Cell culture for chlamydia	44		1143		1187
	Enzyme immuno assay	1095	1	91		1187
	Direct fluorescent antibody	48		1139		1187
Female	Cell culture for chlamydia	143	2	3543	1	3689
	Enzyme immuno assay	3383	1	303	2	3689
	Direct fluorescent antibody	136		3523	3	3689
1997						
Male	Cell culture for chlamydia	21	2	1078		1101
	Enzyme immuno assay	1034		67		1101
	Direct fluorescent antibody	48	1	1052		1101
Female	Cell culture for chlamydia	124	1	3321		3446
	Enzyme immuno assay	3215		230	1	3446
	Direct fluorescent antibody	107		3339		3446

Source: Alberta Health and Wellness STD database.

Table 2.3.13 shows that approximately 80 per cent of chlamydia cases reported in 1997 were managed by physicians and 7.5 per cent were identified through positive lab results only. The remainder were seen at various provincial STD clinics: 5.9 per cent at the Edmonton STD clinic, 4.8 per cent at the Calgary STD clinic, and 1.2 per cent at the Fort McMurray STD clinic.

2.4.1 Canada

Data on non-gonococcal urethritis or mucopurulent cervicitis (NGU/MPC) are not collected nationally.

2.4.2 Alberta

Distribution and determinants of disease

Non-gonococcal urethritis or mucopurulent cervicitis (NGU/MPC) has been reportable in Alberta since 1985. Although between 1985 and 1989, data for NGU/MPC included all cases of chlamydia.

Next to *Chlamydia trachomatis*, the syndrome NGU/MPC is the most frequently reported STD in Alberta.

Table 2.3.13 Incidence of *Chlamydia trachomatis* cases by reporting agency, Alberta, 1997

Reporting Agency	1996		1997	
Physicians	3905	80.1%	3666	80.6%
Positive lab result only	369	7.6%	343	7.5%
Edmonton STD clinic	308	6.3%	267	5.9%
Calgary STD clinic	260	5.3%	218	4.8%
Ft. McMurray STD clinic	34	0.7%	53	1.2%
Total	4876	100%	4547	100%

Source: Alberta Health and Wellness STD database.

In Alberta, the number of reported cases of NGU/MPC dropped from 3,386 in 1991 to 2,809 in 1997, a decrease of 17 per cent. Table 2.4.1 and Figure 2.4.1 show the rate per 100,000 population dropped from 182.1 to 139.8 per 100,000 for males and from 96.3 to 61.7 per 100,000 for females over the same time period.

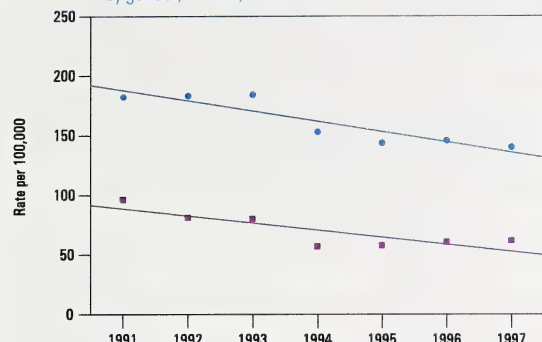
The number of cases attributed to males continues to be two to three times higher than for females. This may be due in part to the fact that males are more likely to be symptomatic and thus diagnosed more readily than asymptomatic females.

Table 2.4.1 Rates per 100,000 population of reported NGU/MPC infections by age and gender, Alberta, 1991 to 1997

	Age (years)	1991	1992	1993	1994	1995	1996	1997
Males	<10							
	10-14	4.3	3.2	4.9	4.7	3.7	2.7	1.8
	15-19	271.9	292.8	283.8	311.9	242.4	261.8	210.1
	20-24	724.6	689.5	733.3	674.0	648.9	649.3	604.8
	25-29	509.7	541.3	468.7	359.9	384.3	407.1	444.5
	30-39	217.2	218.9	243.0	174.8	173.8	173.8	175.4
	40-59	60.8	70.5	71.2	56.0	57.8	65.4	59.5
	60+	11.8	7.4	16.1	6.8	11.4	10.1	8.1
	Subtotal	182.1	183.0	184.0	152.7	143.3	145.4	139.8
Females	<10							
	10-14	14.8	12.3	15.5	19.0	7.7	1.9	5.6
	15-19	351.4	363.9	331.9	250.5	248.0	281.6	252.5
	20-24	348.5	352.5	342.5	2664.8	262.3	284.2	297.7
	25-29	158.1	166.5	164.4	115.2	129.9	119.4	126.8
	30-39	77.2	55.3	63.9	39.5	45.9	48.0	53.1
	40-59	18.3	14.6	15.8	8.3	12.2	14.4	14.0
	60+	0.6	0.6	1.1		0.5	1.0	
	Subtotal	96.3	81.2	79.9	57.2	57.7	60.6	61.7

1996 and 1997 figures taken from Alberta Health and Wellness STD database. Rates from 1991 to 1995 taken from previous Sexually Transmitted Disease Services Annual Statistical Reports.

Figure 2.4.1 Rates per 100,000 population of reported NGU/MPC infections by gender, Alberta, 1991 to 1997



Source: 1996 and 1997 figures taken from Alberta Health and Wellness STD database. Rates from 1991 to 1995 taken from previous Sexually Transmitted Disease Services Annual Statistical Reports.

In 1997, the rate of reported NGU/MPC was 139.8 per 100,000 among males and 61.7 per 100,000 among females. The highest rates for males occurred in those aged 20 to 29 years. Most notable were the 577 cases among 20- to 24-year-old males that accounted for 30 per cent of all male cases and 20 per cent of the total cases reported in 1997. The highest rates among females in 1997 occurred in those aged 15 to 24 years.

Table 2.4.2 Incidence and rates per 100,000 population of reported NGU/MPC infections by age and gender, Alberta, 1997

Age (years)	Male Incidence	Male Rate	Female Incidence	Female Rate	Total Incidence	Total Rate
<1						
1-4						
5-9						
10-14	2		6		8	
15-19	217	210.1	248	252.5	465	230.8
20-24	577	604.8	283	297.7	860	451.5
25-29	446	444.5	129	126.8	575	284.5
30-39	428	175.4	132	53.1	560	113.7
40-59	209	59.5	48	14.0	257	37.0
60+	14	8.1		0.0	14	3.7
missing data	52		18		70	
Total	1945	139.8	864	61.7	2809	100.6

Source: Alberta Health and Wellness STD database.

Table 2.4.3 shows that 30.2 per cent of NGU/MPC infections reported in Alberta in 1997 were from the Calgary health authority and 37.3 per cent were from the Capital health authority, reflecting the higher number of cases reported by the STD clinics as compared to gonorrhoea and chlamydia. The rest of the cases were distributed across the other regions. The SE scores were the highest in the Headwaters, Capital, Northern Lights, and Northwestern health regions.

Table 2.4.3 Incidence, rates per 100,000 population and standard error scores* of reported NGU/MPC infections by RHA, Alberta, 1997

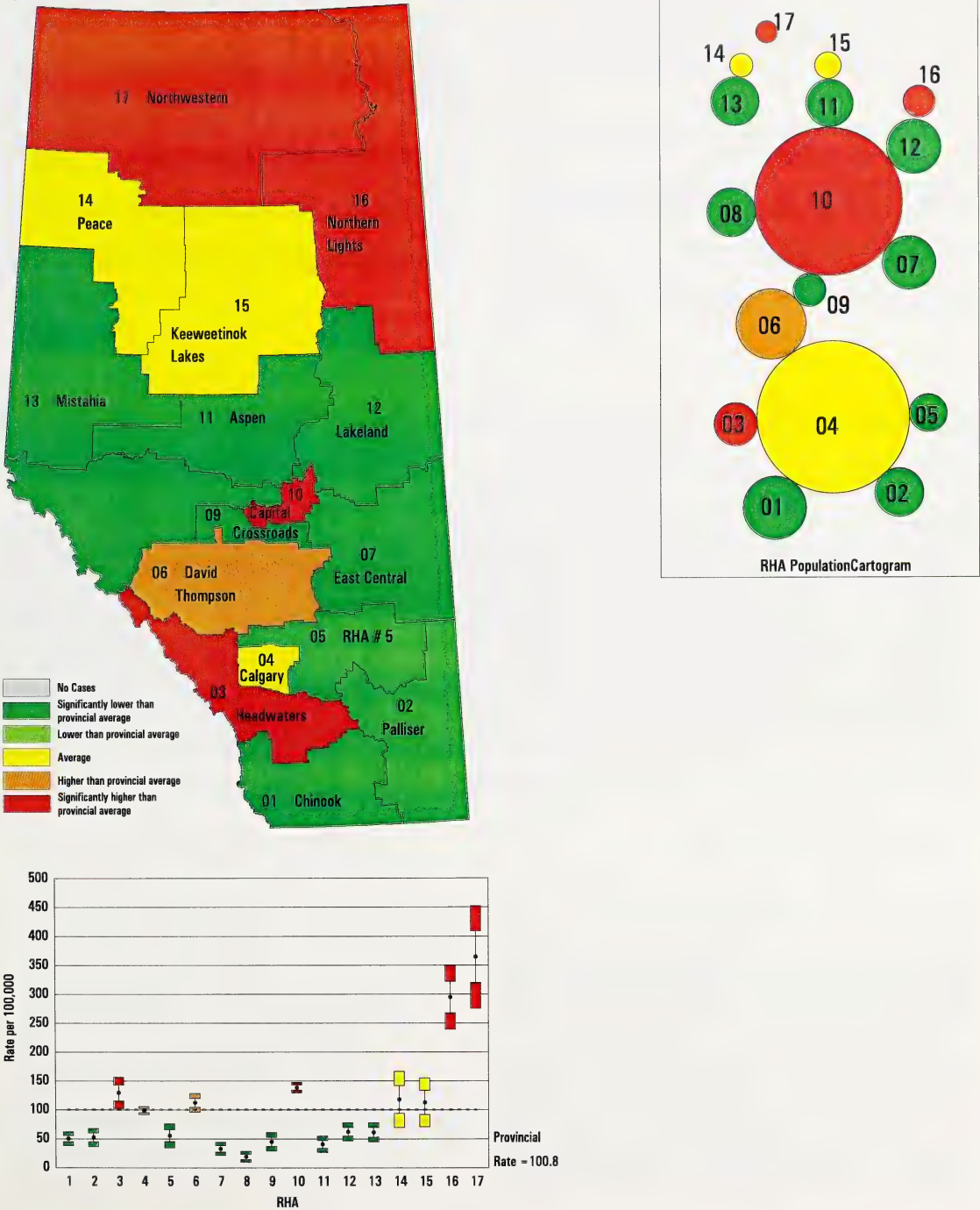
Regional Health Authority	Cases	%	RHA population	Rate per 100,000	SE score*	Score classification**
1 Chinook	74	2.6%	145,734	50.8	-8.4	Lower
2 Palliser	46	1.6%	86,742	53.0	-6.1	Lower
3 Headwaters	90	3.2%	69,218	130.0	-2.1	Higher
4 Calgary	847	30.2%	860,575	98.4	-0.7	Average
5 RHA 5	29	1.0%	51,647	56.2	-4.3	Lower
6 David Thompson	203	7.2%	180,219	112.6	1.5	Average
7 East Central	34	1.2%	102,699	33.1	-11.9	Lower
8 Westview	17	0.6%	87,809	19.4	-17.3	Lower
9 Crossroads	33	1.2%	38,886	84.9	1.1	Average
10 Capital	1047	37.3%	791,772	132.2	7.7	Higher
11 Aspen	33	1.2%	80,922	40.8	-8.4	Lower
12 Lakeland	66	2.3%	106,185	62.2	-5.0	Lower
13 Mistahia	54	1.9%	86,246	62.6	-4.5	Lower
14 Peace	24	0.9%	20,014	119.9	0.8	Average
15 Keeweenok Lakes	29	1.0%	25,347	114.4	0.6	Average
16 Northern Lights	113	4.0%	38,351	294.6	7.0	Higher
17 Northwestern	67	2.4%	18,788	356.6	5.9	Higher
missing data	3	0.1%	200			
Total	2809	100%	2,791,334	100.6		

*The standard error score (SE) compares the regional rate to the overall provincial rate controlling for the size of the population

**SE classifications are: <-2.0=Lower; -2.0 to 2.0=Average; >2.0=Higher.

Source: Alberta Health and Wellness STD database.

Figure 2.4.2 Rate ratio classification of reported NGU/MPC infections by RHA, Alberta, 1997



Source: Alberta Health and Wellness STD database.

In 1997, 82 per cent of reported cases with NGU/MPC said they were heterosexual, 1.6 per cent homosexual and one per cent bisexual (see Table 2.4.4). Sexual preference was not recorded for 15 per cent of cases.

Table 2.4.4 Incidence of reported NGU/MPC infections by sexual preference and gender, Alberta, 1997

Sexual orientation	Male	Female	Total	%
Heterosexual	1603	711	2314	82.4%
Homosexual	46		46	1.6%
Bisexual	20	7	27	1.0%
N/A (child < 12 years)				0%
Not recorded	276	146	422	15.0%
Total	1945	864	2809	100%

Source: Alberta Health and Wellness STD database.

Table 2.4.6 shows that of the 1,370 cases of NGU/MPC seen at the provincial STD clinics in 1997, 800 cases (59 per cent) reported no previous history of STD. Of those reporting previous STD infections, the most frequent infections were NGU/MPC, chlamydia or a combination.

Table 2.4.6 Incidence of NGU/MPC infections by previous STD infections, Alberta, 1997

Previous STD	Male	Female	Total	%
Seen at provincial STD clinic:				
None	501	299	800	58.4%
Gonorrhea	46	12	58	4.2%
Syphilis	1	1	2	0.1%
NGU/MPC	138	24	162	11.8%
Herpes genitalis	12	9	21	1.5%
Chlamydia	97	74	171	12.5%
Combination of above	99	38	137	10.0%
Unknown	13	6	19	1.4%
Subtotal	907	463	1370	100%
Physician notification - no history provided	1038	401	1439	
Total	1945	864	2809	

Source: Alberta Health and Wellness STD database.

Table 2.4.7 Incidence of reported NGU/MPC infections by place of exposure, Alberta, 1996 and 1997

Place of exposure	1996	1997
Alberta	2718	2697
Other Canada	34	46
U.S./Caribbean/S. America	12	16
Asia	6	11
Europe	6	2
Africa	1	1
Other	4	5
Unknown	39	31
Total	2820	2809

Source: Alberta Health and Wellness STD database.

Table 2.4.5 shows that 77 per cent of cases of NGU/MPC reported in 1997 were single, separated, widowed or divorced; 15.3 per cent were married or common-law; and marital status was not recorded for the remaining cases.

Table 2.4.5 Incidence of reported NGU/MPC infections by marital status and gender, Alberta, 1997

Marital status	1996	1997
Single/separated/divorced/widowed	2211	2208
Married/common-law	411	429
Unknown	198	172
Total	2820	2809

Source: Alberta Health and Wellness STD database.

Table 2.4.7 shows that 96 per cent of cases of NGU/MPC reported in both 1996 and 1997 reported that they had been exposed to infection in Alberta. The remaining four per cent had contact either in other parts of Canada or outside the country.

Table 2.4.8 Incidence of reported NGU/MPC infections by race, Alberta, 1996 and 1997

Racial Origin	1996		1997	
Caucasian	1972	69.9%	1994	71.0%
Black	108	3.8%	95	3.4%
Oriental	51	1.8%	52	1.9%
Other Asiatic	14	0.5%	14	0.5%
NA Indian	342	12.1%	350	12.5%
Metis	28	1.0%	19	0.7%
Other	54	1.9%	67	2.4%
Unknown	251	8.9%	218	7.8%
Total	2820	100%	2809	100%

Source: Alberta Health and Wellness STD database.

Table 2.4.9 Incidence of reported NGU/MPC infections by drug treatment prescribed, Alberta, 1997

Drug Treatment	1996		1997	
Ciprofloxacin/Ofloxacin & Tetra/Doxy	1017	36.1%	263	9.4%
Tetra/Doxy	1589	56.3%	206	7.3%
Ciprofloxacin/Ofloxacin & Erythromycin	9	0.3%	14	0.5%
Ampicillin & Tetra/Doxy	1	0.0%	1	0.0%
Ampicillin & Erythromycin	1	0.0%		0.0%
Ceftriaxone & Tetra/Doxy	25	0.9%	7	0.2%
Ceftriaxone & Erythromycin	3	0.1%	1	0.0%
Erythromycin	93	3.3%	47	1.7%
Other*	38	1.3%	2226	79.2%
Ciprofloxacin/Ofloxacin	2	0.1%	7	0.2%
Ampicillin/Probenecid		0.0%		0.0%
Ceftriaxone	3	0.1%	5	0.2%
Unknown	39	1.4%	32	1.1%
Total	2820	100%	2809	100%

*The most frequently used "other" drug was azithromycin.

Source: Alberta Health and Wellness STD database.

Just over 85 per cent of people with NGU/MPC reported in 1997 provided some information about their sexual contacts during their infectious period. Investigators were able to trace contacts in only 49 per cent of cases reported because insufficient information was provided. The percentages of cases reporting contacts and investigable contacts in 1997 were comparable to 1996 percentages (see Table 2.4.10).

Table 2.4.10 Incidence of reported NGU/MPC infections by number of contacts (reported and investigable), Alberta, 1997

	1996	1997
% of cases who reported contacts	84.7%	85.3%
% of cases with investigable contacts	51.3%	49.1%

Source: Alberta Health and Wellness STD database.

Approximately 70 per cent of cases of NGU/MPC reported in 1996 and 1997 were recorded as Caucasian, just under 12.5 per cent North American Indian, three to four per cent black, and just under two per cent Oriental (see Table 2.4.8).

Treatment and follow-up

In 1996, the drugs of choice in the treatment of NGU/MPC were doxycycline, tetracycline, and erythromycin. Azithromycin (recorded as "other") was added to this list in 1997. In both 1996 and 1997, 98.4 per cent of NGU/MPC infections reported in Alberta were treated with these drugs of choice, although the emphasis shifted to azithromycin in 1997 (see Table 2.4.9).

Table 2.4.11 Incidence of reported NGU/MPC infections by reporting agency, Alberta, 1996 and 1997

Reporting Agency	1996	1997
Physicians	1427	1439
Edmonton clinic	832	768
Calgary clinic	475	511
Ft. McMurray clinic	85	91
Lab result positive (no notification)	1	
Total	2820	2809

Source: Alberta Health and Wellness STD database.

In 1996 and 1997, just over 50 per cent of cases of NGU/MPC were reported by physicians, 27 to 30 per cent by the Edmonton STD clinic, 16 to 18 per cent by the Calgary STD clinic, and approximately three per cent by the Fort McMurray STD clinic.

2.5 Pelvic inflammatory disease

Pelvic inflammatory disease (PID) is inflammation of the internal female genital organs. It is estimated that 75 to 85 per cent of PID cases are caused by sexually transmitted diseases and, of these, gonorrhea and chlamydia infections are responsible for 20 to 40 per cent and 25 to 65 per cent of cases respectively.¹³ Pelvic inflammatory disease can lead to ectopic pregnancy and infertility. Approximately 15 per cent of women who have had PID become infertile after one episode and 30 per cent after two episodes.¹⁴

Pelvic inflammatory disease is not reportable in Canada. Its true incidence and prevalence are unknown. Incidence can be estimated by examining hospital admissions for PID. However, this estimate reflects only those cases that were severe enough to require hospitalization.

Nationally, hospitalization rates for PID among women aged 15 to 44 decreased from 281.2 per 100,000 in 1984/85 to 125.5 per 100,000 in 1993/94, a drop of 55.4 per cent.¹⁵ This may be, in part, a result of changes to the way PID cases are treated and managed.

Table 2.5.1 shows that in Alberta, 1,074 women were hospitalized in 1996 for PID¹⁶ (1,025 women were hospitalized once and 49 were hospitalized more than once for a total number of 1,130 hospitalizations). One-third of the hospitalizations were among women in their thirties and an additional 24 per cent among women aged 40 to 59 years. This may reflect more advanced infections.

Table 2.5.1 Number of women hospitalized for PID by the number of hospitalizations and age category, Alberta, 1996

Number of times hospitalized Age (years)	1	2	3	4	Total	%
<15	12	1			13	1.2%
15-19	104	6	2		112	10.4%
20-24	142	9		1	152	14.2%
25-29	146	4			150	14.0%
30-39	348	12	2		362	33.7%
40-59	249	9	1		259	24.1%
60+	24	2			26	2.4%
Total	1025	43	5	1	1074	100%

* This table reflects the number of women hospitalized rather than the total number of hospitalizations.

Source: Alberta Health and Wellness hospitalization database prepared by the Health Surveillance Branch, Alberta Health and Wellness.

Table 2.5.2 Number of hospitalizations for PID by RHA, Alberta, 1996

Regional Health Authority	Cases	%
1. Chinook	96	8.5%
2. Palliser	27	2.4%
3. Headwaters	25	2.2%
4. Calgary	250	22.1%
5. RHA 5	29	2.6%
6. David Thompson	86	7.6%
7. East Central	39	3.5%
8. Westview	43	3.8%
9. Crossroads	26	2.3%
10. Capital	236	20.9%
11. Aspen	31	2.7%
12. Lakeland	70	6.2%
13. Mistahia	58	5.1%
14. Peace	15	1.3%
15. Keeweenaw Lakes	47	4.2%
16. Northern Lights	31	2.7%
17. Northwestern	21	1.9%
Total	1130	100%

Source: Alberta Health and Wellness hospitalization database prepared by the Health Surveillance Branch, Alberta Health and Wellness.

Table 2.5.2 shows that women from across the province were hospitalized for PID in 1996. Just over 20 per cent of cases were hospitalized in the Capital health region and 22 per cent from the Calgary health region. Other areas with a relatively high number of hospitalizations for PID included the Chinook, David Thompson, Lakeland, and Mistahia regions.

Table 2.5.3 illustrates the distribution of hospitalizations by diagnosis based on ICD 9 codes. The most frequent reason for PID hospitalizations in 1996 was pelvic peritoneal adhesions, a symptom of advanced PID. This suggests that these women had experienced previous infections and supports the finding that hospitalizations were more frequent among women aged 30 to 59 years.

Table 2.5.3 Number of hospitalizations for PID by ICD 9 diagnosis, Alberta, 1996

ICD9-CM	Diagnosis	Cases	%
6140	Acute salpingitis & oophoritis	37	3.3%
6141	Chronic salpingitis & oophoritis	90	8.0%
6142	Salpingitis & oophoritis not specified as acute/suba/chronic	65	5.8%
6143	Acute parametritis & pelvic cellulitis	137	12.1%
6144	Chronic or unspec. pelvic peritonitis, female	105	9.3%
6145	Acute or unspec. pelvic peritonitis, female	5	0.4%
6146	Pelvic peritoneal adhesions, female	257	22.7%
6148	Other spec. inflammatory disease of female pelvic organs/tissues	1	0.1%
6149	Unspec. inflammatory disease of female pelvic organs/tissues	194	17.2%
6150	Inflammatory diseases of uterus, except cervix (acute)	17	1.5%
6151	Inflammatory diseases of uterus, except cervix (chronic)	5	0.4%
6159	Unspec. inflammatory disease of uterus	26	2.3%
6160	Cervicitis and endocervicitis	26	2.3%
6161	Vaginitis and vulvovaginitis, unspec.	20	1.8%
6162	Cyst of Bartholin's gland	21	1.9%
6163	Abcess of Bartholin's gland	92	8.1%
6164	Other abcess of vulva	27	2.4%
6165	Ulceration of vulva, unspec.	2	0.2%
6168	Other spec. inflammatory disease of cervix, vagina, and vulva	3	0.3%
	Total	1130	100%

Source: Alberta Health and Wellness hospitalization database prepared by the Health Surveillance Branch, Alberta Health and Wellness.

2.6 Claims for physician services related to STD

The number of physician services provided for STD-related conditions is an indicator of the level of STD in the population and provides information on the burden of these infections to the health system. The following tables contain data for all physician visits claimed using ICD9 diagnostic codes 90.0 through 99.9 and 614.0 through 616.917 for either the primary, secondary or tertiary diagnosis.

Table 2.6.1 Number and percentage of STD-related physician visits by gender and age category, Alberta, 1997

Age (Years)	Female		Male	
	Visits	%	Visits	%
<1	178	0.2%	40	1.7%
1-4	1,595	1.9%	54	2.4%
5-9	1,075	1.3%	39	1.7%
10-14	964	1.1%	27	1.2%
15-19	8,875	10.5%	238	10.4%
20-24	13,796	16.3%	471	20.6%
25-29	12,468	14.7%	371	16.2%
30-39	21,915	25.9%	551	24.1%
40-59	17,792	21.0%	352	15.4%
60+	5,916	7.0%	143	6.3%
Total	84,574	100%	2,286	100%

Source: Alberta Health and Wellness physician services database prepared by the Health Surveillance Branch, Alberta Health and Wellness.

In 1997 there were 86,860 physician visits claimed with a diagnosis of a STD-related condition. Table 2.6.1 shows that females accounted for 97.4 per cent of these visits and males 2.6 per cent.

Table 2.6.2 Number and rate per 100,000 of STD-related physician visits by RHA, Alberta, 1997

Regional Health Authority	Visits	Rate per 1,000
1. Chinook	3,878	26.6
2. Palliser	2,620	30.2
3. Headwaters	1,709	24.7
4. Calgary	27,199	31.6
5. RHA 5	1,323	25.6
6. David Thompson	5,548	30.8
7. East Central	2,366	23.0
8. Westview	2,604	29.7
9. Crossroads	1,236	31.8
10. Capital	23,755	30.0
11. Aspen	1,974	24.4
12. Lakeland	4,020	37.9
13. Mistahia	2,603	30.2
14. Peace	455	22.7
15. Keeweenok Lakes	1,346	53.1
16. Northern Lights	1,791	46.7
17. Northwestern	533	28.4
missing data	1,900	
Total	86,860	31.1

Source: Alberta Health and Wellness physician services database prepared by the Health Surveillance Branch, Alberta Health and Wellness.

Table 2.6.2 shows the number and rate per 100,000 population of STD-related physician visits in 1997, by RHA. Approximately 31 per cent of all visits were attributable to recipients of the Calgary health region, 27 per cent from the Edmonton health region and the remainder from other health regions across the province.

The overall rate for Alberta in 1997 was 31.1 per 1,000. The highest rates were seen in the Keeweenok Lakes (53.1) and Northern Lights (46.7) health regions. In addition to these two regions, the Calgary, Lakeland and Crossroads regions all had rates higher than the provincial average.

STD Screening, Surveillance & Program activities

3.1 Contact Tracing

Identifying new cases by contacting partners of people with STD is one of the most effective strategies used to control these infections. When patients are seen in a physician's office or STD clinic they are asked to provide contact information on sexual partners during their infectious period. Partner notification nurses then attempt to notify the contacts. Not all contacts are reported and not all contacts reported can be identified. Table 3.1.1 shows the number of contacts reported and the number and overall percentage that could be traced.

In 1997, 7,424 notifications of STD were received. Of these, 5,781 notifications contained information on 7,314 sexual partners. Some partners had already

been identified and treated, others could not be located due to inadequate information. Overall, 56 per cent of all partners named were located through contact tracing. The success of contact tracing varied depending on the reporting agency. Information on contacts provided by the Calgary clinic resulted in a contact tracing rate of 61.4 per cent, the Edmonton clinic 46.5 per cent, the Fort McMurray clinic 38.6 per cent, and 58.4 per cent for notifications from physicians.

In July 1997, the partner notification function was transferred to the regions. Designated nurses in each health authority are responsible for contact tracing within their region. The program is co-ordinated by Alberta Health and Wellness.

Table 3.1.1 Number of partners reported on notifications for confirmed cases of *Neisseria gonorrhoeae*, NGU/MPC, *Chlamydia trachomatis*, and syphilis, Alberta, 1997

Reporting agency	Total notifications recieved	Notifications with partner information	Total number of partners	Partners with sufficient information for investigation	Percentage of total partners contacted
Physicians	5,393	3,777	4,519	2,639	58.4%
Edmonton clinic	1,098	1,092	1,520	707	46.5%
Calgary clinic	782	766	990	608	61.4%
Fort McMurray clinic	151	146	285	110	38.6%
Total	7,424	5,781	7,314	4,064	55.6%

Source: Alberta Health and Wellness STD database

3.2 Clinic Services

3.2.1 Patient services

During both 1996 and 1997, there were approximately 8,000 new admissions and 20,000 visits by former patients each year for a total of 28,265 visits in 1996 and 27,721 in 1997 (see Table 3.2.1). In both years, the Edmonton clinic handled just over 58 per cent of the visits, the Calgary clinic 38 per cent and the Fort McMurray clinic three to four per cent. New admissions accounted for about 30 per cent of all visits.

Table 3.2.1 Patient utilization of STD clinics by clinic and patient status, Alberta, 1996 and 1997

Year	STD clinic	New admissions	Former patients	Total visits	%
1997	Edmonton	4,207	11,994	16,201	58.4%
	Calgary	3,429	7,206	10,635	38.4%
	Fort McMurray	328	557	885	3.2%
	Total	7,964	19,757	27,721	100%
1996	Edmonton	4,303	12,195	16,498	58.4%
	Calgary	3,389	7,338	10,727	38.0%
	Fort McMurray	357	683	1,040	3.7%
	Total	8,049	20,216	28,265	100%

Source: STD Services, Alberta Health and Wellness

Table 3.2.2 shows the number of STD clinic visits for HIV by gender and clinic. In both 1996 and 1997, males accounted for approximately 60 per cent of all visits, females the remaining 40 per cent. In 1997, 63 per cent of HIV-related visits occurred at the Edmonton STD clinic, 33 per cent at the Calgary STD clinic and 3.6 per cent at the Fort McMurray clinic. Figures for 1996 were similar.

Table 3.2.2 HIV-related visits to STD clinics by clinic and gender, Alberta, 1996 and 1997

Year	STD clinic	Male	Female	Total	%
1997	Edmonton	4,864	3,410	8,274	63.3%
	Calgary	2,875	1,454	4,329	33.1%
	Fort McMurray	200	267	467	3.6%
	Total	7,939	5,131	13,070	100%
1996	Edmonton	4,723	3,329	8,052	59.9%
	Calgary	3,006	1,729	4,735	35.2%
	Fort McMurray	261	397	658	4.9%
	Total	7,990	5,455	13,445	100%

Source: STD Services, Alberta Health and Wellness

Table 3.2.3 shows that the two main reasons for visiting all three STD clinics in 1997 were for HIV assessment or STD examination. Human papilloma virus was the reason for visiting STD clinics for 11 per cent of Edmonton patients, 8.5 per cent of Calgary patients and 2.4 per cent of Fort McMurray patients. Other major reasons for visiting the STD clinics included: non-gonococcal urethritis, cervicitis and vaginitis. Just over nine per cent of cases seen at Fort McMurray were seen for chlamydia, a figure more than double that of Edmonton or Calgary. The proportion of visits for cervicitis, vaginitis, chlamydia, and herpes simplex virus was higher at the Fort McMurray STD clinic than the other two STD clinics in the province. Overall there were relatively few visits were for gonorrhoea, pelvic inflammatory disease or syphilis.

Table 3.2.3 Percentage of total visits per STD clinic by diagnosis*, Alberta, 1997

Diagnosis	Edmonton	Calgary	Fort McMurray
HIV related	51.1%	40.7%	52.8%
STD examination	46.9%	20.5%	38.8%
Human papilloma virus	10.9%	8.5%	2.4%
Urethritis, non-gonococcal	9.7%	7.2%	8.2%
Cervicitis, non-gonococcal	5.5%	3.1%	15.7%
Vaginitis	4.1%	6.3%	15.9%
<i>Chlamydia trachomatis</i>	2.0%	4.6%	9.2%
Herpes simplex virus	2.5%	3.7%	5.8%
<i>Neisseria gonorrhoeae</i>	0.7%	1.1%	1.2%
Pelvic inflammatory disease	0.2%	1.1%	0.4%
Syphilis	0.6%	1.2%	0.3%

* Expressed as a percentage of total visits. Counts are sex-specific where appropriate. Percentages do not add up to 100 because patients may have attended the clinic for more than one reason.

Source: STD Services, Alberta Health and Wellness

In 1996 and 1997, Edmonton STD clinic physicians saw three to four times the number of patients than the Calgary STD clinic. This occurred because the Edmonton clinic had a full complement of consulting physicians while the Calgary clinic had only partial coverage. The high number of physician visits by male patients reflects the ongoing care provided to patients with HIV/AIDS by the clinic physicians.

Year	STD clinic	Male	Female	Total
1996	Edmonton	864	213	1,077
	Calgary	224	73	297
	Total	1,088	286	1,374
1997	Edmonton	906	269	1,775
	Calgary	316	114	430
	Total	1,222	383	1,605

Table 3.2.4 STD clinic physician visits, Alberta, 1996 and 1997
Source: STD Services, Alberta Health and Wellness

3.2.2 Serologic tests

Table 3.2.5 details the number of serologic tests taken and the number that were positive for syphilis, HIV or hepatitis B in STD clinics in 1997. The table shows that 2.3 per cent of serologic tests taken at the Edmonton STD clinic and 1.7 per cent taken at the Calgary STD clinic were positive. The percentage of positive serologic tests for the HIV antibody was 1.2 per cent in Edmonton and 0.3 per cent in Calgary. None of the tests taken at the Fort McMurray clinic were positive for either syphilis or HIV.

Table 3.2.5 Serologic testing at STD clinics, Alberta, 1997

Clinic		Syphilis		HIV antibody		Hepatitis B	Total
		Male	Female	Male	Female		
Edmonton	Tests	3,181	2,689	2,383	2,013	1,065	11,331
	Positive	65	68	34	17		
Calgary	Tests	2,782	1,756	1,886	1,188	806	8,418
	Positive	50	26	8	2		
Fort McMurray	Tests	108	153	113	134	65	573
	Positive	-	-	-	-		
Total (combined across gender)		10,669		7,117		1,936	20,322

Source: STD Services, Alberta Health and Wellness

3.2.3 Laboratory investigation

Urethral smears provide a rapid diagnosis for *Neisseria gonorrhoeae* and non-gonococcal urethritis. Vaginal wet mount and gram stain examinations assess the presence of bacterial vaginosis, candida and trichomonas. Darkfield examinations are done to detect syphilis. Pap smears reflect the presence of atypia, HPV effect, and changes consistent with CIN I, II or III.

Table 3.2.6 details the tests done at the STD clinic laboratories in Alberta in 1997. Each type of test showed the following positive percentages: urethral smears (44.7 per cent), wet mounts/gram stains (45.4 per cent), Darkfield examinations (< .01 per cent), *Neisseria gonorrhoeae* cultures (1.2 per cent for males and 0.7 per cent for females), *Chlamydia trachomatis* identification (6.3 per cent male and 5.1 per cent female), herpes simplex virus identification (25.3 per cent male and 18.8 per cent female), and Pap smear (15.8 per cent). Little difference was seen in positivity rates between 1996 and 1997 other than a slight increase in herpes simplex and Pap smears.

Table 3.2.6 Laboratory investigations by type of test and clinic, Alberta, 1997

Lab test:	Edmonton clinic		Calgary clinic		Ft. McMurray clinic		Total	
	Taken	Positive	Taken	Positive	Taken	Positive	Taken	Positive
Urethral smear	1,817		1,014		121		2,952	
<i>Neisseria gonorrhoea</i>		46		28		4		78
Non-gonococcal urethritis		874		335		34		1,243
Wet mount/Gram stain	649		698		273		1,620	
Bacterial vaginosis		142		162		80		384
Candida		107		145		24		276
Trichomonas		35		16		7		76
Darkfield	1	-	16	-	-	-	17	-
<i>Neisseria gonorrhoea</i>								
Male - urethra	2,582	26	2,168	19	120	2	4,870	47
rectal	62	1	118	7	-	-	180	8
pharynx	123	1	210	6	-	-	333	7
Total	2,767	28	2,496	32	120	2	5,383	62
Female - cervix/urethra	2,841	24	1,545	14	261	3	4,647	41
rectal	2,555	7	1,519	10	234	-	4,308	17
pharynx	37	-	7	-	28	1	72	1
Total	5,433	31	3,071	24	523	4	9,027	59
<i>Chlamydia trachomatis</i>								
Male - urethra	2,737	160	2,155	141	120	17	5,012	318
Female - cervix/urethra	2,923	116	1,579	103	540	38	5,042	257
Herpes simplex virus								
Male - urethra	216	16	7	3	2	1	225	20
lesion	347	98	210	78	36	11	593	187
Total	563	114	217	81	38	12	818	207
Female - urethra	421	26	170	28	94	1	685	55
lesion	395	113	249	81	46	9	690	203
Total	816	139	419	109	140	10	1,375	258
Pap smear	1,113	145	503	121	98	5	1,714	271

Source: STD Services, Alberta Health and Wellness

3.3 STD/HIV 1-800 Information Line

In 1987, an AIDS information line was established by Alberta Health and Wellness in recognition of the need to provide the public with toll-free, reliable information on HIV/AIDS. In 1990, this service was expanded to include STD information. The information line is confidential, anonymous and available province wide. It was operated from December 1987 until November 1997 by Alberta Health and Wellness. In November 1997, the operation of the line was divested to the Capital Regional Health Authority as a provincial resource.

The computer-answered information line is available 24 hours a day. Callers to the line are greeted by a recorded message. By using the key pad of a touch-

tone phone, they can hear recorded messages about STD and HIV infection. If callers choose to speak directly with a nurse during regular business hours, Monday to Friday, they are invited to push zero on a touch-tone phone to be connected to the nurse.

In 1997, 27 per cent of the callers using the nurse-answered feature requested information on HIV and 73 per cent on STD. This is comparable to 1996 when 33 per cent requested information on HIV and 67 per cent on STD. During the transfer of STD services to the Capital RHA, the nurse-answered feature did not operate from December 3, 1996 to April 3, 1997 and again in December 1997. This accounts for the low number of nurse-answered calls during these months. The nurse-answered feature was reinstated on April 3, 1997.

Over the years, the total number of calls demonstrates the effectiveness of the telephone as a means of accessing current, personally relevant and confidential information. The number of computer-answered calls in 1996 was comparable to previous years. However, in 1997, the total number of computer-answered calls decreased. This could be related to technical difficulties that occurred during the transfer of services.

Figure 3.3.1 STD/HIV Information Line 1996

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Computer-answered calls	2,581	2,838	2,303	2,352	2,234	2,294	2,284	2,274	2,182	2,432	2,017	1,601	27,932
Nurse-answered calls	370	347	381	351	328	323	301	310	333	358	281	35	3,718
HIV information	150	146	137	117	107	109	95	91	93	103	81	7	1,236
STD information	220	201	244	234	221	214	206	219	240	255	200	28	2,482

Data Source: Disease Control and Prevention, Alberta Health and Wellness

Figure 3.3.2 STD/HIV Information Line 1997

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Computer-answered calls	2,070	1,695	1,902	2,163	2,031	2,124	2,091	2,161	2,031	2,013	1,178	1,402	22,861
Nurse-answered calls	23	13	18	317	295	306	340	326	381	369	81	0	2,469
HIV information	9	3	8	92	87	68	90	76	120	104	17	0	674
STD information	14	10	10	225	208	238	250	250	261	265	64	0	1,795

Data Source: Disease Control and Prevention, Alberta Health and Wellness

Figure 3.3.3 STD/HIV 1-800 Information Line 1989 - 1997

Year	1989	1990	1991	1992	1993	1994	1995	1996	1997
Nurse-answered	896	1,128	1,669	2,696	2,424	2,586	3,451	3,718	2,469
Computer-answered	13,692	20,181	28,843	33,418	30,645	28,256	28,672	27,392	22,861

Data Source: Disease Control and Prevention, Alberta Health and Wellness

Appendix A

Table A1 Population of RHA by age and gender, Alberta, 1997 (used to determine rates)

RHA	Female	Male	Total	Age Category	Female	Male	Total
1	73,528	72,206	145,734	<1	18,021	19,541	37,562
2	43,486	43,256	86,742	1-4	77,952	81,890	159,842
3	34,310	34,908	69,218	5-9	105,583	110,934	216,517
4	433,146	427,429	860,575	10-14	106,030	111,725	217,755
5	25,782	25,865	51,647	15-19	98,226	103,277	201,503
6	90,364	89,855	180,219	20-24	95,077	95,403	190,480
7	51,600	51,099	102,699	25-29	101,729	100,346	202,075
8	43,103	44,706	87,809	30-34	117,541	114,349	231,890
9	19,304	19,562	38,866	35-39	130,859	129,659	260,518
10	400,637	391,135	791,772	40-44	117,949	121,386	239,317
11	39,549	41,373	80,922	45-49	94,766	97,347	192,113
12	53,050	53,135	106,185	50-54	73,999	75,981	149,980
13	42,193	44,053	86,246	55-59	56,026	56,845	112,871
14	9,742	10,272	20,014	60-64	48,800	48,878	97,678
15	12,355	12,992	25,347	65-69	45,253	44,025	89,278
16	18,618	19,733	38,351	70-74	39,274	33,409	72,683
17	9,101	9,687	18,788	75-79	31,807	23,173	54,980
Unknown	98	102	200	80-84	21,958	13,652	35,610
Total	1,399,966	1,391,368	2,791,334	85-89	12,192	6,207	18,399
				90+	6,743	2,783	9,526
				Unknown	181	576	757
				Total	1,399,966	1,391,368	2,791,334

Source: Health Surveillance Branch data, Alberta Health and Wellness.

Table A2 Population of RHA by age and gender, Alberta, 1996 (used to determine rates)

RHA	Female	Male	Total	Age Category	Female	Male	Total
1	72,895	71,752	144,647	<1	18,769	19,667	38,436
2	42,899	42,739	85,638	1-4	78,944	82,780	161,724
3	33,281	33,792	67,073	5-9	104,988	110,364	215,352
4	420,371	413,196	833,567	10-14	104,641	110,067	214,708
5	25,572	25,657	51,229	15-19	95,522	100,449	195,971
6	89,105	88,380	177,485	20-24	92,906	93,179	186,085
7	51,327	50,718	102,045	25-29	101,314	99,246	200,560
8	42,154	43,704	85,858	30-34	121,350	117,365	238,715
9	35,920	36,606	72,526	35-39	128,495	128,910	257,405
10	380,178	370,757	750,935	40-44	112,492	115,703	228,195
11	39,295	41,312	80,607	45-49	92,644	94,852	187,496
12	52,661	52,586	105,247	50-54	67,835	69,652	137,487
13	41,526	43,282	84,808	55-59	54,132	54,843	108,975
14	9,807	10,259	20,066	60-64	48,303	48,807	97,110
15	12,172	12,854	25,026	65-69	44,596	43,104	87,700
16	17,825	18,830	36,655	70-74	39,182	32,509	71,691
17	8,616	9,144	17,760	75-79	30,121	22,044	52,165
Total	1,375,604	1,365,568	2,741,172	80-84	21,170	13,259	34,429
				85-89	11,745	6,101	17,846
				90+	6,455	2,667	9,122
				Total	1,375,604	1,365,568	2,741,172

Source: Health Surveillance Branch data, Alberta Health and Wellness.

Appendix B

Table B1 Incidence of cases and rates per 100,000 population of reported gonococcal infections by age and gender, Alberta, 1996

Age	Male		Female		Total	
	Cases	Rate	Cases	Rate	Cases	Rate
<1						
1-4						
5-9			2	1.9	2	0.9
10-14	1	0.9	5	4.8	6	2.8
15-19	40	39.8	107	112.0	147	75.0
20-24	76	81.6	69	74.3	145	77.9
25-29	41	41.3	27	26.6	68	33.9
30-39	60	24.4	13	5.2	73	14.7
40-59	25	7.5	2	0.6	27	4.1
60+	4	2.4		0.0	4	1.1
Total	247	18.1	225	16.4	472	17.2

Source: Alberta Health and Wellness STD database.

Table B2 Incidence of reported gonococcal infections by sexual preference and gender, Alberta, 1996

Sexual Orientation	Male	Female	Total	%
Heterosexual	143	148	291	61.7%
Homosexual	15		15	3.2%
Bisexual	5		5	1.1%
N/A (Child < 12)		2	2	0.4%
Not recorded	84	75	159	33.7%
Total	247	225	472	100%

Source: Alberta Health and Wellness STD database

Table B3 Incidence of reported gonococcal infections by marital status and gender, Alberta, 1996

Marital status	Male	Female	Total	%
Single/separated/divorced/widowed	172	157	329	69.7%
Married/common-law	28	18	46	9.7%
Not recorded	47	50	97	20.6%
Total	247	225	472	100.0%

Source: Alberta Health and Wellness STD database

Table B4 Incidence of reported gonococcal infection by previous STD infections, Alberta, 1996

Previous STD	Male	Female	Total	%
None	46	25	71	15.0%
Gonorrhea	10		10	2.1%
Syphilis	1		1	0.2%
NGU/MPC	5	1	6	1.3%
Herpes genitalis		2	2	0.4%
Chlamydia	7	11	18	3.8%
Combination of above	18	3	21	4.4%
Not recorded	3		3	0.6%
Not applicable (physician notification)	157	183	340	72.0%
Total	247	225	472	100%

Source: Alberta Health and Wellness STD database

Table B5 Incidence of reported gonococcal infections by site of infection, age and gender, Alberta, 1996

Gender/Age category	Site of infection				Total
	Genito-urinary	Rectal	Pharyngeal	Multi-site	
Males 0-14 years	1				1
15-19	37	2		1	40
20-24	75			1	76
25-29	38	1	2		41
30-39	55	2		3	60
40-59	25				25
60+	4				4
Subtotal	235	5	2	5	247
Females 0-14 years	7				7
15-19	103	3		1	107
20-24	69				69
25-29	27				27
30-39	13				13
40-59	2				2
60+					0
Subtotal	221	3		1	225
Total	456	8	2	6	472

Source: Alberta Health and Wellness STD database

Table B6 Incidence of penicillinase producing *Neisseria gonorrhoeae* (PPNG), Alberta, 1996

Gonococcal resistance	n=	%
Beta-lactamase - negative	440	93.2%
Beta-lactamase - positive	8	1.7%
Not done/unknown	24	5.1%
Total	472	100%

Source: Alberta Health and Wellness STD database

Table B7 Incidence of reported gonococcal infections by test positivity, Alberta, 1996

Type of Test	Test outcome			Total
	Positive	Negative	Unknown	
Male GC smear	146	14	87	247
GC culture	240	6	1	247
Enzyme immuno assay	1	1	245	247
Female GC smear	3	6	216	225
GC culture	225			225
Enzyme immuno assay			225	225

Source: Alberta Health and Wellness STD database

Appendix C

Table C1 Incidence and rates per 100,000 population of reported syphilis by age and gender, Alberta, 1996

Age	Male		Female		Total	
	Incidence	Rate	Incidence	Rate	Incidence	Rate
<1						
1-4						
5-9						
10-14						
15-19		0.0	1	1.0	1	0.5
20-24	1	1.0	1	1.1	2	1.1
25-29	2	0.8	4	3.9	6	3.0
30-39	9	2.7	2	0.8	11	2.2
40-59	9	5.3	4	1.2	13	2.0
60+	3	1.5	5	2.5	8	2.2
Total	24	1.8	17	1.2	41	1.5

Source: Alberta Health and Wellness STD database.

Appendix D

Table D1 Incidence and rates per 100,000 population of Chlamydia trachomatis infections by age and gender, Alberta, 1996

Age	Male		Female		Total	
	Cases	Rate	Cases	Rate	Cases	Rate
<1	4	20.3	4	21.3	8	20.8
1-4						0.0
5-9						0.0
10-14	3	2.7	52	49.7	55	25.6
15-19	227	226.7	1554	1626.9	1781	908.8
20-24	466	500.1	1367	1471.1	1833	985.0
25-29	267	269.0	465	459.0	732	365.0
30-39	162	65.8	208	83.3	370	74.6
40-59	51	15.2	32	9.8	83	12.5
60+	3	1.8	5	2.5	8	2.2
Total	1187	86.6	3689	268.0	4876	177.7

Source: Alberta Health and Wellness STD database.

Table D2 Incidence of Chlamydia trachomatis infections by marital status and gender, Alberta, 1996

Marital status	Male		Female	
	Number	%	Number	%
Single/separated/divorced/widowed	895	75.4%	2441	66.2%
Married/common-law	101	8.5%	478	13.0%
Unknown	191	16.1%	770	20.9%
Total	1,187	100%	3,689	100%

Source: Alberta Health and Wellness STD database.

Table D3 Incidence of Chlamydia trachomatis infections by racial origin and gender, Alberta, 1996

Racial origin	Male		Female	
	Number	%	Number	%
Caucasian	697	58.7%	1,886	51.1%
Black	77	6.5%	38	1.0%
Oriental	41	3.5%	102	2.8%
Other Asiatic	7	0.6%	6	0.2%
NA Indian	108	9.1%	659	17.9%
Metis	7	0.6%	19	0.5%
Other	28	2.4%	44	1.2%
Unknown	222	18.7%	935	25.3%
Total	1,187	100%	3,689	100%

Source: Alberta Health and Wellness STD database.

Table D4 Incidence of Chlamydia trachomatis infections by test positivity, Alberta, 1996

Type of Test	Test outcome				Total
	Positive	Negative	Not done	Unknown	
Male - Cell culture for chlamydia	44		1,143		1,187
Enzyme immuno assay	1,095	1	91		1,187
Direct fluorescent antibody	48		1,139		1,187
Female - Cell culture for chlamydia	143	2	3,543	1	3,689
Enzyme immuno assay	3,383	1	303	2	3,689
Direct fluorescent antibody	163		3,523	3	3,689

Source: Alberta Health and Wellness STD database.

Table D5 Incidence, rates per 100,000 population and standard error scores of Chlamydia trachomatis infections by RHA, Alberta, 1996

Regional Health Authority	Cases	%	RHA population	Rate per 100,000	SE Score	Score Classification
1 Chinook	220	4.5%	144,647	152.0	-2.52	Lower
2 Palliser	139	2.9%	85,638	162.3	-1.13	Average
3 Headwaters	90	1.8%	67,073	134.2	-3.09	Lower
4 Calgary	1,374	28.2%	833,567	164.8	-2.94	Lower
5 RHA 5	37	0.8%	51,229	72.2	-8.90	Lower
6 David Thompson	404	8.3%	177,485	227.6	4.40	Higher
7 East Central	81	1.7%	102,045	79.4	-11.17	Lower
8 Westview	115	2.4%	85,858	133.9	-3.52	Lower
9 Crossroads	144	3.0%	72,526	198.5	1.25	Average
10 Capital	1,423	29.2%	750,935	189.5	2.31	Higher
11 Aspen	62	1.3%	80,607	76.9	-10.34	Lower
12 Lakeland	119	2.4%	105,247	113.1	-6.26	Lower
13 Mistahia	261	5.4%	84,808	307.8	6.83	Higher
14 Peace	57	1.2%	20,066	284.1	2.83	Higher
15 Keeweenaw Lakes	143	2.9%	25,026	571.4	8.26	Higher
16 Northern Lights	96	2.0%	36,655	261.9	3.15	Higher
17 Northwestern	111	2.3%	17,760	625.0	7.56	Higher
Total	4,876	100.0%	2,741,172	177.9		

Source: Alberta Health and Wellness STD database.

Appendix E

Table E1 Incidence and rates per 100,000 of reportable NGU/MPC infections by age and gender, Alberta, 1996

Age	Male		Female		Total	
	Incidence	Rate	Incidence	Rate	Incidence	Rate
<1						
1-4						
5-9						
10-14	3	2.7	2	1.9	5	2.3
15-19	263	261.8	269	281.6	532	271.5
20-24	605	649.3	264	284.2	869	467.0
25-29	404	407.1	121	119.4	525	261.8
30-39	428	173.8	120	48.0	548	110.5
40-59	219	65.4	47	14.4	266	40.2
60+	17	10.1	2	1.0	19	5.1
Missing data	47		9		56	
Total	1,986	145.4	834	60.6	2,820	102.9

Source: Alberta Health and Wellness STD database.

Table E2 Incidence of reportable NGU/MPC infections by sexual preference and gender, Alberta, 1996

Sexual Orientation	Male	Female	Total	%
Heterosexual	1599	682	2281	80.9%
Homosexual	45		45	1.6%
Bisexual	12	4	16	0.6%
N/A (Child < 12)				0.0%
Not recorded	330	148	478	17.0%
Total	1,986	834	2,820	100%

Source: Alberta Health and Wellness STD database.

Table E3 Incidence of reportable NGU/MPC infections by marital status and gender, Alberta, 1996

Marital status	Male	Female	Total	%
Single	1,426	601	2,027	71.9%
Separated/divorced/widowed	117	67	184	6.5%
Married/common-law	300	111	411	14.6%
Unknown	143	55	198	7.0%
Total	1,986	834	2,820	100%

Source: Alberta Health and Wellness STD database.

Table E4 Incidence of reportable NGU/MPC infections by previous STD infections, Alberta, 1996

Previous STD	Male	Female	Total	%
None	505	275	780	56.0%
Gonorrhea	51	19	70	5.0%
Syphilis	1		1	0.1%
NGU/MPC	169	24	193	13.9%
Herpes genitalis	20	15	35	2.5%
Chlamydia	73	80	153	11.0%
Combination of above	119	30	149	10.7%
Unknown	10	1	11	0.8%
Subtotal	948	444	1,392	100%
Physician notification (no history provided)	1,038	390	1,428	
Total	1,986	834	2,820	

Source: Alberta Health and Wellness STD database.

Appendix F

Table F1 Number and percentage of STD-related physician visits by gender and age category, Alberta, 1996

Age	Female		Male	
	Visits	%	Visits	%
<1	1,718	1.9%	61	2.7%
1-4	1,089	1.2%	43	1.9%
5-9	9,621	10.7%	192	8.6%
10-14	14,822	16.6%	452	20.4%
15-19	13,462	15.0%	441	19.9%
20-24	23,486	26.2%	502	22.6%
25-29	1,094	1.2%	42	1.9%
30-39	18,010	20.1%	325	14.6%
40-59	6,031	6.7%	110	5.0%
60+	170	0.2%	53	2.4%
Total	89,503	100%	2,221	100%

Source: Alberta Health and Wellness physician services database prepared by the Health Surveillance Branch, Alberta Health and Wellness

Table F2 Number and rate per 100,000 of STD-related physician visits by RHA, Alberta, 1996

Regional Health Authority	Visits	Rate per 100,000
1 Chinook	3,738	2,584.2
2 Palliser	2,692	3,143.5
3 Headwaters	1,793	2,673.2
4 Calgary	28,475	3,416.0
5 RHA 5	1,379	2,691.8
6 David Thompson	6,136	3,457.2
7 East Central	2,215	2,170.6
8 Westview	2,806	3,268.2
9 Crossroads	1,401	1,931.7
10 Capital	25,421	3,385.2
11 Aspen	2,151	2,668.5
12 Lakeland	3,835	3,643.8
13 Mistahia	2,529	2,982.0
14 Peace	567	2,825.7
15 Keeweenaw Lakes	1,261	5,038.8
16 Northern Lights	1,784	4,867.0
17 Northwestern	524	2,950.5
Missing data	3,017	
Total	91,724	3,346.2

Source: Alberta Health and Wellness physician services database prepared by the Health Surveillance Branch, Alberta Health and Wellness

Appendix G

Table G1 Percentage of total visits per STD clinic by diagnosis*, Alberta, 1996

Diagnosis	Edmonton	Calgary	Fort McMurray
HIV related	48.8%	44.1%	63.7%
STD examination	39.3%	18.5%	25.9%
Human papilloma virus	11.5%	8.2%	1.7%
Urethritis, non-gonococcal	12.2%	8.9%	8.7%
Cervicitis, non-gonococcal	5.9%	3.1%	10.2%
Vaginitis	4.9%	4.4%	18.2%
<i>Chlamydia trachomatis</i>	2.8%	4.2%	5.8%
Herpes simplex virus	2.1%	3.0%	3.8%
<i>Neisseria gonorrhoeae</i>	1.0%	1.1%	1.7%
Pelvic inflammatory disease	0.9%	1.3%	0.5%
Syphilis	0.4%	1.8%	0.1%

* Expressed as a percentage of total visits. Sex specific where appropriate. Percentages do not add to 100 because patients may have attended the clinic for more than one reason.

Source: STD Services, Alberta Health and Wellness

Table G2 Serologic testing at STD clinics, Alberta, 1996

Clinic		Syphilis		HIV antibody		Hepatitis B	Total
		Male	Female	Male	Female		
Edmonton	Tests	3,348	2,802	2,354	2,093	1,274	11,871
	Positive	80	40	15	5		
Calgary	Tests	2,729	1,847	1,935	1,270	770	8,551
	Positive	80	44	6	1		
Fort McMurray	Tests	144	203	127	210	130	8,14
	Positive						
Total		11,073	(combined)	7989	(combined)	2,174	21,236

Source: STD Services, Alberta Health and Wellness

Table G3 Laboratory investigations by type of test and clinic, Alberta, 1996

Lab test	Edmonton		Calgary		Fort McMurray		Total	
	Taken	Positive	Taken	Positive	Taken	Positive	Taken	Positive
Urethral smear	1,970		1,144		138		3,252	
<i>Neisseria gonorrhoea</i>		49		32		15		96
Non-gonococcal urethritis		877		424		38		1,339
Wet mount/Gram stain	880		754		284		1,918	
Bacterial vaginosis		149		184		114		447
Candida		168		155		27		350
Trichomonas		78		23		3		104
Darkfield	8	0	3	0	0	0	11	0
<i>Neisseria gonorrhoea</i>								
Male - urethra	2,703	27	2,220	39	143	4	5,066	70
-rectal	74	1	95	6			169	7
-pharynx	181	0	143	8			324	8
Total	2,958	28	2,458	53	143	4	5,559	85
Female - cervix/urethra	2,768	19	1,466	16	274		4,508	35
- rectal	2,512	2	1,522	4	274		4,308	6
- pharynx	51	1	14	1			65	2
Total	5,331	22	3,002	21	548		8,881	43
<i>Chlamydia trachomatis</i>								
Male (urethra)	2,973	158	2,131	168	150	13	5,254	339
Female (cervix/urethra)	2,839	140	1,595	113	559	19	4,993	272
Herpes simplex virus								
Male - urethra	195	12	15	2			210	14
- lesion	379	107	196	66	28	4	603	177
Total	574	119	211	68	28	4	813	191
Female - cervix	424	34	104	19	92	3	62	56
- lesion	384	123	182	54	36	11	690	188
Total	808	157	286	73	128	14	1,375	244
Pap smear	1,083	117	554	116	80	7	1,714	240

Source: STD Services, Alberta Health and Wellness

-
- 1 Health Canada. Sexually Transmitted Disease Surveillance in Canada: 1995 Annual Report. Bureau of HIV/AIDS and STD, Laboratory Centre for Disease Control, Health Protection Branch.
 - 2 Ronald A and Peeling R. Sexually transmitted infections: their manifestations and links to infertility and reproductive illness. In: Understanding infertility: risk factors affecting infertility. Research Studies of the Royal Commission on New Reproductive Technologies, Volume 7. Ottawa: Minister of Supply and Services Canada 1993; p 1-31.
 - 3 HIV/AIDS in Alberta: Epidemiologic Report to December 1997.
 - 4 Ronald A and Peeling R. Sexually transmitted infections: their manifestations and links to infertility and reproductive illness. In: Understanding infertility: risk factors affecting infertility. Research Studies of the Royal Commission on New Reproductive Technologies, Volume 7. Ottawa: Minister of Supply and Services Canada 1993; p 1-31.
 - 5 Benenson AS, editor. Control of communicable diseases in man (16th ed.). Washington, DC: American Public Health Association, 1995.
 - 6 Goeree R and Gully P. The burden of chlamydial and gonococcal infection in Canada. In: Prevention of infertility. Research Studies of the Royal Commission of New Reproductive Technologies, Vol. 5. Ottawa: Minister of Supply and Services Canada, 1993; p 29-76.
 - 7 Health and Welfare Canada. Canadian communicable disease surveillance system: disease-specific definitions and surveillance methods. CDWR 1991: 17S3; p 30.
 - 8 Alberta data show 41 cases rather than the 40 cases recorded by LCDC. Alberta data show one case as infectious, LCDC none.
 - 9 Laboratory Centre for Disease Control. Sexually transmitted disease surveillance in Canada: 1995 annual report. CCDDR 1998; 24S1: p 1-32.
 - 10 Centres for Disease Control and Prevention. Recommendations for the prevention and management of Chlamydia trachomatis infections. MMWR 1993; 42(RR-12): p 1-39.
 - 11 Ronald AR and Peeling RW. Sexually transmitted infections: their manifestations and links to infertility and reproductive illness. In: Understanding infertility: risk factors affecting infertility. Ottawa: Minister of Supply and Services. 1993; p 1-131.
 - 12 Goeree R and Gully P. The burden of chlamydial and gonococcal infection in Canada. In: Royal Commission on New Reproductive Technologies. Prevention of infertility. Ottawa: Minister of Supply and Services Canada, 1993; p 29-76.
 - 13 Ronald A and Peeling R. Sexually transmitted infections: their manifestations and links to infertility and reproductive illness. In: Understanding infertility: risk factors affecting infertility. Research Studies of the Royal Commission on New Reproductive Technologies, Volume 7. Ottawa: Minister of Supply and Services Canada 1993; p 1-31.
 - 14 Health Protection Branch, Health Canada. Sexually Transmitted Disease Surveillance in Canada: 1995 Annual Report.
 - 15 Health Protection Branch, Health Canada. Sexually Transmitted Disease Surveillance in Canada: 1995 Annual Report.
 - 16 ICD 9 codes 614.0 to 616.9.
 - 17 ICD9 code description: 90 - congenital syphilis; 91 - early syphilis, symptomatic; 92 - early syphilis, latent; 93 - cardiac syphilis; 94 - neurosyphilis; 95 - other forms of late syphilis; 96 - late syphilis, latent; 97 - other unspecified syphilis; 98 - gonococcal infections; 99 - other venereal diseases; 614 - inflammatory disease of the ovary, fallopian tubes, pelvic cellular tissue, and peritoneum; 615 - inflammatory disease of the uterus (excluding cervix); and, 616 - inflammatory disease of the cervix, vagina or vulva.
Sexually Transmitted Disease in Alberta: Epidemiologic Report to December 1997

National Library of Canada
Bibliothèque nationale du Canada



3 3286 52001233 3